



SEQUENCE LISTING

<110> Scariato, Vincenzo
Massignani, Vega
Rappuoli, Rino
Pizza, Mariagrazia
Grandi, Guido

<120> Neisserial Antigens

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<140> 09/303,518

<141> 1999-04-30

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<170> PatentIn version 3.1

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<212> DNA

<213> Neisseria meningitidis

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<223> N= Unknown

<220>

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<223> N= Unknown

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gctgaagcgg	tcagatggta	tcggcagccg	gcggaacagg	ggtagccca	agcccaatac	240
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gatggtatcg	gcaggcggca	gcgcaggggg	ttgtccaagc	ccaatacaat	ttgggcgtga	360
tatatgccga	aggacgtgga	gtgcgcgaag	acgatgtcga	agcggtcaga	tggtttcggc	420
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<213> Neisseria meningitidis

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 Leu Xaa Ala Ala Ala Gln Gly Asn Ala Ala Ala Gln Tyr Asn Leu Gly
 35 40 45
 Ala Met Tyr Xaa Gln Arg Thr Arg Val Arg Arg Asp Asp Ala Glu Ala
 50 55 60
 Val Arg Trp Tyr Arg Gln Pro Ala Glu Gln Gly Leu Ala Gln Ala Gln
 65 70 75 80
 Tyr Asn Leu Gly Trp Met Tyr Ala Asn Gly Arg Xaa Val Arg Gln Asp
 85 90 95
 Asp Thr Glu Ala Val Arg Trp Tyr Arg Gln Ala Ala Ala Gln Gly Val
 100 105 110
 Val Gln Ala Gln Tyr Asn Leu Gly Val Ile Tyr Ala Glu Gly Arg Gly
 115 120 125
 Val Arg Gln Asp Asp Val Glu Ala Val Arg Trp Phe Arg Gln Ala Ala
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 gatgctgaag cggtcagatg gtatcggcag gcggcggaac aggggttagc ccaagcccaa 240
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 <213> *Neisseria meningitidis*

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 20 25 30
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 35 40 45
 Ala Met Tyr Tyr Lys Gly Arg Gly Val Arg Arg Asp Asp Ala Glu Ala
 50 55 60
 Val Arg Trp Tyr Arg Gln Ala Ala Glu Gln Gly Leu Ala Gln Ala Gln
 65 70 75 80
 Tyr Asn Leu Gly Trp Met Tyr Ala Asn Gly Arg Gly Val Arg Gln Asp
 85 90 95
 Asp Thr Glu Ala Val Arg Trp Tyr Arg Gln Ala Ala Ala Gln Gly Val
 100 105 110
 Val Gln Ala Gln Tyr Asn Leu Gly Val Ile Tyr Ala Glu Gly Arg Gly
 115 120 125
 Val Arg Gln Asp Asp Val Glu Ala Val Arg Trp Phe Arg Gln Ala Ala
 130 135 140
 Ala Gln Gly Val Ala Gln Ala Gln Asn Asn Leu Gly Val Met Tyr Ala
 145 150 155 160

Glu Arg Arg Gly Val Arg Gln Asp Arg Ala Leu Ala Gln Glu Trp Phe

165

170

175

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Arg Leu Lys Ala Gly Tyr
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gcagcagccc aaaacaattt gggcgtgatg tatgccgaaa gacgcggcgt gcgccaagac 180
cgcgcccttg cacaagaatg gcttggcaag gcttgtcaaa acggatacca agacagctgc 240
gacaatgacc aacgcctgaa agcgggttat tga 273

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Leu Gln Ala Ala Ala Gln Gly Asn Ala Ala Ala Gln Asn Asn Leu Gly
35 40 45

Val Met Tyr Ala Glu Arg Arg Gly Val Arg Gln Asp Arg Ala Leu Ala
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<211> 381
<212> DNA
<213> *Neisseria gonorrhoeae*

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gcagcagccc aattcaattt gggcgtgatg tatgaaaatg gacaaggagt tcgtcaagat 180
tatgtacagg cagtgcagtg gtatcgcaag gcttcagaac aaggggatgc ccaagcccaa 240

tacaatttgg gcttgatgta ttacgatgga cgcgcggtgc gccaaagacct tgcgctcgct 300
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cgctgaagg cgggttatta a 381

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 <213> Neisseria meningitidis

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 20 25 30
 Leu Gln Ala Ala Glu Gln Gly Asn Ala Ala Ala Gln Phe Asn Leu Gly
 35 40 45
 Val Met Tyr Glu Asn Gly Gln Gly Val Arg Gln Asp Tyr Val Gln Ala
 50 55 60
 Val Gln Trp Tyr Arg Lys Ala Ser Glu Gln Gly Asp Ala Gln Ala Gln
 65 70 75 80
 Tyr Asn Leu Gly Leu Met Tyr Tyr Asp Gly Arg Gly Val Arg Gln Asp
 85 90 95
 Leu Ala Leu Ala Gln Gln Trp Leu Gly Lys Ala Cys Gln Asn Gly Asp
 100 105 110
 Gln Asn Ser Cys Asp Asn Asp Gln Arg Leu Lys Ala Gly Tyr
 115 120 125

<210> 9
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 <213> Neisseria meningitidis

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 20 25 30

Tyr Gln Ala Arg Val Arg Leu Asp Leu Asp Gly Lys Tyr Gln Phe Ser
 35 40 45

Ser Asp Val Ser Ala Gln Ile Leu Thr Ser Gly Leu Leu Gly Glu Gln
 50 55 60

Tyr Ile Gly Leu Gln Gln Gly Gly Asp Thr Glu Asn Leu Ala Ala Gly
 65 70 75 80

Asp Thr Ile Ser Val Thr Ser Ser Ala Met Val Leu Glu Asn Leu Ile
 85 90 95

Gly Lys Phe Met Thr Ser Phe Ala Glu Lys Asn Ala Asp Gly Gly Asn
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Ala Glu Lys Ala Ala Glu
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<210> 11
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 <212> DNA
 <213> Neisseria meningitidis

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 <213> Neisseria meningitidis

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 <223> Xaa= any amino acid

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<223> Xaa= any amino acid

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Phe Arg Ser Met Arg Asp Gly Leu Tyr Ser Asp Gly Ile Pro Leu Pro
35 40 45

Asp Gly Glu Arg Leu Thr Pro Phe Gly Lys Lys Leu Arg Ala Ala Ser
50 55 60

Xaa Asp Glu Leu Pro Glu Leu Trp Asn Ile Leu Lys Gly Glu Met Ser
65 70 75 80

Leu Val Gly Pro Arg Pro Leu Leu Met Gln Tyr Leu Pro Leu Tyr Asp
85 90 95

Asn Phe Gln Asn Arg Arg His Glu Met Lys Pro Gly Ile Thr Gly Trp
100 105 110

Ala Gln Val Asn Gly Arg Asn Ala Leu Ser Trp Asp Glu Lys Phe Ala
115 120 125

Cys Asp Val Trp Tyr Ile Asp His Phe Ser Leu Cys Leu Asp Ile Lys
130 135 140

Ile Leu Leu Leu Thr Val Lys Lys Val Leu Ile Lys Glu Gly Ile Ser
145 150 155 160

Ala Gln Gly Glu Xaa Thr Met Pro Pro Phe Thr Gly Lys Arg Lys Leu
165 170 175

Ala Val Val Gly Ala Gly Gly His Gly Lys Val Val Ala Asp Leu Ala
180 185 190

Ala Ala Leu Gly Arg Tyr Arg Glu Ile Val Phe Leu Asp Asp Arg Ala
195 200 205

Gln Gly Ser Val Asn Gly Phe Ser Val Ile Gly Thr Thr Leu Leu Leu
210 215 220

Glu Asn Ser Leu Ser Pro Glu Gln Tyr Asp Val Ala Val Ala Val Gly
225 230 235 240

Asn Asn Arg Ile Arg Arg Gln Ile Ala Glu Lys Ala Ala Ala Leu Gly
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 275 280 285

<210> 13
 <211> 1242

<212> DNA
 <213> *Neisseria meningitidis*

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 <213> *Neisseria meningitidis*

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 Arg Lys Asn Leu Gly Ser Pro Val Phe Phe Phe Gln Glu Arg Pro Gly
 35 40 45
 Lys Asp Gly Lys Pro Phe Lys Met Val Lys Phe Arg Ser Met Arg Asp
 50 55 60
 Ala Leu Asp Ser Asp Gly Ile Pro Leu Pro Asp Gly Glu Arg Leu Thr
 65 70 75 80
 Pro Phe Gly Lys Lys Leu Arg Ala Ala Ser Leu Asp Glu Leu Pro Glu
 85 90 95

Leu Trp Asn Ile Leu Lys Gly Glu Met Ser Leu Val Gly Pro Arg Pro
 100 105 110
 Leu Leu Met Gln Tyr Leu Pro Leu Tyr Asp Asn Phe Gln Asn Arg Arg
 115 120 125
 His Glu Met Lys Pro Gly Ile Thr Gly Trp Ala Gln Val Asn Gly Arg
 130 135 140
 Asn Ala Leu Ser Trp Asp Glu Lys Phe Ala Cys Asp Val Trp Tyr Ile
 145 150 155 160
 Asp His Phe Ser Leu Cys Leu Asp Ile Lys Ile Leu Leu Leu Thr Val
 165 170 175
 Lys Lys Val Leu Ile Lys Glu Gly Ile Ser Ala Gln Gly Glu Ala Thr
 180 185 190
 Met Pro Pro Phe Thr Gly Lys Arg Lys Leu Ala Val Val Gly Ala Gly
 195 200 205
 Gly His Gly Lys Val Val Ala Asp Leu Ala Ala Ala Leu Gly Arg Tyr
 210 215 220
 Arg Glu Ile Val Phe Leu Asp Asp Arg Ala Gln Gly Ser Val Asn Gly
 225 230 235 240
 Phe Ser Val Ile Gly Thr Thr Leu Leu Leu Glu Asn Ser Leu Ser Pro
 245 250 255
 Glu Gln Tyr Asp Val Ala Val Ala Val Gly Asn Asn Arg Ile Arg Arg
 260 265 270
 Gln Ile Ala Glu Lys Ala Ala Ala Leu Gly Phe Ala Leu Pro Val Leu
 275 280 285
 Val His Pro Asp Ala Thr Val Ser Pro Ser Ala Thr Val Gly Gln Gly
 290 295 300
 Ser Val Val Met Ala Lys Ala Val Val Gln Ala Gly Ser Val Leu Lys
 305 310 315 320
 Asp Gly Val Ile Val Asn Thr Ala Ala Thr Val Asp His Asp Cys Leu
 325 330 335
 Leu Asn Ala Phe Val His Ile Ser Pro Gly Ala His Leu Ser Gly Asn
 340 345 350
 Thr His Ile Gly Glu Glu Ser Trp Ile Gly Thr Gly Ala Cys Ser Arg
 355 360 365
 Gln Gln Ile Arg Ile Gly Ser Arg Ala Thr Ile Gly Ala Gly Ala Val
 370 375 380
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385

390

395

400

Lys Pro Leu Pro Arg Lys Asn Pro Glu Thr Ser Thr Ala
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<210> 15

<211> 1242

<212> DNA

<213> *Neisseria meningitidis*

<400> 15

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<210> 16

<211> 413

<212> PRT

<213> *Neisseria meningitidis*

<400> 16

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Arg Lys Asn Leu Gly Ser Pro Val Phe Phe Phe Gln Glu Arg Pro Gly
35 40 45

Lys Asp Gly Lys Pro Phe Lys Met Val Lys Phe Arg Ser Met His Asp
50 55 60

Ala Leu Asp Ser Asp Gly Ile Leu Leu Pro Asp Gly Glu Arg Leu Thr
65 70 75 80

Pro Phe Gly Lys Lys Leu Arg Ala Ala Ser Leu Asp Glu Leu Pro Glu

85	90	95
Leu Trp Asn Val Leu Lys Gly Asp Met Ser Leu Val Gly Pro Arg Pro		
100	105	110
Leu Leu Met Gln Tyr Leu Pro Leu Tyr Asp Asn Phe Gln Asn Arg Arg		
115	120	125
His Glu Met Lys Pro Gly Ile Thr Gly Trp Ala Gln Val Asn Gly Arg		
130	135	140
Asn Ala Leu Ser Trp Asp Glu Arg Phe Ala Cys Asp Ile Trp Tyr Ile		
145	150	155
Asp His Phe Ser Leu Cys Leu Asp Ile Lys Ile Leu Leu Leu Thr Val		
165	170	175
Lys Lys Val Leu Ile Lys Glu Gly Ile Ser Ala Gln Gly Glu Ala Thr		
180	185	190
Met Pro Pro Phe Thr Gly Lys Arg Lys Leu Ala Val Val Gly Ala Gly		
195	200	205
Gly His Gly Lys Val Val Ala Glu Leu Ala Ala Ala Leu Gly Thr Tyr		
210	215	220
Gly Glu Ile Val Phe Leu Asp Asp Arg Val Gln Gly Ser Val Asn Gly		
225	230	235
Phe Pro Val Ile Gly Thr Thr Leu Leu Leu Glu Asn Ser Leu Ser Pro		
245	250	255
Glu Gln Phe Asp Ile Ala Val Ala Val Gly Asn Asn Arg Ile Arg Arg		
260	265	270
Gln Ile Ala Glu Lys Ala Ala Ala Leu Gly Phe Ala Leu Pro Val Leu		
275	280	285
Ile His Pro Asp Ser Thr Val Ser Pro Ser Ala Thr Val Gly Gln Gly		
290	295	300
Gly Val Val Met Ala Lys Ala Val Val Gln Ala Asp Ser Val Leu Lys		
305	310	315
Asp Gly Val Ile Val Asn Thr Ala Ala Thr Val Asp His Asp Cys Leu		
325	330	335
Leu Asp Ala Phe Val His Ile Ser Pro Gly Ala His Leu Ser Gly Asn		
340	345	350
Thr Arg Ile Gly Glu Glu Ser Trp Ile Gly Thr Gly Ala Cys Ser Arg		
355	360	365
Gln Gln Ile Arg Ile Gly Ser Arg Ala Thr Ile Gly Ala Gly Ala Val		
370	375	380

Val Val Arg Asp Val Ser Asp Gly Met Thr Val Ala Gly Asn Pro Ala
 385 390 395 400

Lys Pro Leu Ala Gly Lys Asn Thr Glu Thr Leu Arg Ser
 405 410

<210> 17
 <211> 1242

<212> DNA
 <213> Neisseria gonorrhoeae

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 atcggacaag gcagcgtcgt aatggcgaaa gccgtcgtac aggcgggcag cgtattgaaa 960
 gacggcgtga ttgtgaacac tgccgccacc gtcgatcacg actgectgct tgacgctttc 1020
 gtccacatca gcccgggcgc gcacctgtcg ggcaacacgc gtatcggcga agaaagccgg 1080
 ataggcacgg gcgcgtgcag ccgccagcag acaaccgtcg gcagcggggg taccgcccgg 1140
 gcaggggcgg ttatcgtatg cgacatcccg gacggcatga ccgtcgcggg caaccggcga 1200
 aagcccccta cgggcacaaa cccaagacc gggacggcat aa 1242

<210> 18
 <211> 413
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 18
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 Gly Leu Ile Val Leu Ser Pro Val Phe Leu Val Leu Ile Tyr Leu Ile
 20 25 30
 Arg Lys Asn Leu Gly Ser Pro Val Phe Phe Ile Arg Glu Arg Pro Gly
 35 40 45
 Lys Asp Gly Lys Pro Phe Lys Met Val Lys Phe Arg Ser Met Arg Asp
 50 55 60
 Ala Leu Asp Ser Asp Gly Ile Pro Leu Pro Asp Ser Glu Arg Leu Thr
 65 70 75 80

Asp Phe Gly Lys Lys Leu Arg Ala Thr Ser Leu Asp Glu Leu Pro Glu
 85 90 95
 Leu Trp Asn Val Leu Lys Gly Glu Met Ser Leu Val Gly Pro Arg Pro
 100 105 110
 Leu Leu Met Gln Tyr Leu Pro Leu Tyr Asn Lys Phe Gln Asn Arg Arg
 115 120 125
 His Glu Met Lys Pro Gly Ile Thr Gly Trp Ala Gln Val Asn Gly Arg
 130 135 140
 Asn Ala Leu Ser Trp Asp Glu Lys Phe Ser Cys Asp Val Trp Tyr Thr
 145 150 155 160
 Asp Asn Phe Ser Phe Trp Leu Asp Met Lys Ile Leu Phe Leu Thr Val
 165 170 175
 Lys Lys Val Leu Ile Lys Glu Gly Ile Ser Ala Gln Gly Glu Ala Thr
 180 185 190
 Met Pro Pro Phe Ala Gly Asn Arg Lys Leu Ala Val Ile Gly Ala Gly
 195 200 205
 Gly His Gly Lys Val Val Ala Glu Leu Ala Ala Ala Leu Gly Thr Tyr
 210 215 220
 Gly Glu Ile Val Phe Leu Asp Asp Arg Thr Gln Gly Ser Val Asn Gly
 225 230 235 240
 Phe Pro Val Ile Gly Thr Thr Leu Leu Leu Glu Asn Ser Leu Ser Pro
 245 250 255
 Glu Gln Phe Asp Ile Thr Val Ala Val Gly Asn Asn Arg Ile Arg Arg
 260 265 270
 Gln Ile Thr Glu Asn Ala Ala Ala Leu Gly Phe Lys Leu Pro Val Leu
 275 280 285
 Ile His Pro Asp Ala Thr Val Ser Pro Ser Ala Ile Ile Gly Gln Gly
 290 295 300
 Ser Val Val Met Ala Lys Ala Val Val Gln Ala Gly Ser Val Leu Lys
 305 310 315 320
 Asp Gly Val Ile Val Asn Thr Ala Ala Thr Val Asp His Asp Cys Leu
 325 330 335
 Leu Asp Ala Phe Val His Ile Ser Pro Gly Ala His Leu Ser Gly Asn
 340 345 350
 Thr Arg Ile Gly Glu Glu Ser Arg Ile Gly Thr Gly Ala Cys Ser Arg
 355 360 365

Gln Gln Thr Thr Val Gly Ser Gly Val Thr Ala Gly Ala Gly Ala Val
 370 375 380

Ile Val Cys Asp Ile Pro Asp Gly Met Thr Val Ala Gly Asn Pro Ala
 385 390 395 400

Lys Pro Leu Thr Gly Lys Asn Pro Lys Thr Gly Thr Ala
 405 410

<210> 19
 <211> 394

<212> DNA
 <213> Neisseria meningitidis

<400> 19
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 gacatcatcg agcaaatcgt cggcgaaatc gaagacgagt ttgacgaaga cgatagcgcc 120
 gacaatatcc atgccgtttc ttcagacacg tggcgcatcc atgcagctac cgaaatcgaa 180
 gacatcaaca ccttcttcgg cacggaatac agcatcgaag aagccgacac cattggcggc 240
 ctggtcattc aagagttggg acatctgccc gtgcgcgggc aaaaagtcct tatcggcggg 300
 ttgcagttca ccgtcgacg cgccgacaac cgccgcctgc atacgctgat ggcgaccgcg 360
 gtgaagtaag caccgccgtt tctgcacagt ttatg 394

<210> 20
 <211> 131
 <212> PRT
 <213> Neisseria meningitidis

<220>
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 <222> (79)..(79)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (125)..(125)
 <223> Xaa= any amino acid

<400> 20
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Val Thr Phe Glu Asp Ile Ile Glu Gln Ile Val Gly Glu Ile Glu Asp
 20 25 30

Glu Phe Asp Glu Asp Asp Ser Ala Asp Asn Ile His Ala Val Ser Ser
 35 40 45

Asp Thr Trp Arg Ile His Ala Ala Thr Glu Ile Glu Asp Ile Asn Thr
 50 55 60

Phe Phe Gly Thr Glu Tyr Ser Ile Glu Glu Ala Asp Thr Ile Xaa Arg
 65 70 75 80

Pro Gly His Ser Arg Val Gly Thr Ser Ala Arg Ala Arg Arg Lys Ser

85

90

95

Pro Tyr Arg Arg Phe Ala Val His Arg Arg Thr Arg Arg Gln Pro Pro
 100 105 110

Pro Ala Tyr Ala Asp Gly Asp Pro Arg Glu Val Ser Xaa Arg Arg Phe
 115 120 125

Cys Thr Val
 130

<210> 21

<211> 900

<212> DNA

<213> *Neisseria meningitidis*

<400> 21

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gaacccgatt	ccgccgaaga	cgtattaaac	ctgcttcggc	aggcgcacga	gcaggaagtt	120
tttgatgcgg	atacgctttt	aagattggaa	aaagtcctcg	atTTTTccga	tttggaaagt	180
cgcgacgcga	tgattacgcg	cagccgtatg	aacgttttaa	aagaaaacga	cagcatcgag	240
cgcatacccg	cctacgttat	cgataccgcc	cattcgcgct	tccccgtcat	cggcgaagac	300
aaagacgaag	ttttgggcat	tttgacgcc	aaagacctgc	tcaaataat	gtttaacccc	360
gagcagttcc	acctcaaate	cattctccgc	cccgcgtct	tcgtccccga	aggcaaatec	420
ctgaccgccc	ttttaaaaga	gttccgcgaa	cagcgcaacc	atatggcgat	tgtcatcgac	480
gaatacggcg	gcacatccgg	cttggtcacc	tttgaagaca	tcacgcagca	aatcgtcggc	540
gaaatcgaag	acgagtttga	cgaagacgat	agcgccgaca	atatccatgc	cgtttcttcc	600
gaacgctggc	gcatccatgc	agctaccgaa	atcgaagaca	tcaacacctt	cttcggcacg	660
gaatacagca	gcgaagaagc	cgacaccatt	cggcctggtc	attcaagagt	tgggacatct	720
gcccgtgcgc	ggcgaaaaag	tccttatcgg	cggtttgcag	ttcacgcgtc	cacgcgccga	780
caaccgccgc	ctgcatacgc	tgatggcgac	ccgcgtgaag	taagcaccgc	cgtttctgca	840
cagtttagga	tgacggtacg	ggcgttttct	gtttcaatcc	gccccatccg	ccaaacataa	900

<210> 22

<211> 299

<212> PRT

<213> *Neisseria meningitidis*

<400> 22

Met Asp Gly Ala Gln Pro Lys Thr Asn Phe Phe Glu Arg Leu Ile Ala
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Arg Leu Ala Arg Glu Pro Asp Ser Ala Glu Asp Val Leu Asn Leu Leu
 20 25 30

Arg Gln Ala His Glu Gln Glu Val Phe Asp Ala Asp Thr Leu Leu Arg
 35 40 45

Leu Glu Lys Val Leu Asp Phe Ser Asp Leu Glu Val Arg Asp Ala Met
 50 55 60

Ile Thr Arg Ser Arg Met Asn Val Leu Lys Glu Asn Asp Ser Ile Glu
 65 70 75 80

Arg Ile Thr Ala Tyr Val Ile Asp Thr Ala His Ser Arg Phe Pro Val

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 <223> N= Unknown

<220>
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 <223> N= Unknown

<220>
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 <223> N= Unknown

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 <223> N= Unknown

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 <223> N= Unknown

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 <223> N= Unknown

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 <223> N= Unknown

<220>
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 <223> N= Unknown

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 tttgatgcgg atacgctttt aagattggaa aaagtcctcg atttttctga tttggaagtg 180
 cgcgacgcga tgattacgcg cagccgtatg aacgttttaa aagaaaacga cagcatcgaa 240
 cgcacaccgc cctacgttat cgataccgcc cattcgcgct tccccgtcat cgggtgaagac 300
 aaagacgaag ttttggttat tttgcacgcc aaagacctgc tcaaataat gttcaacccc 360
 gagcagttcc acctcaaadc gatattgcgc cctgcccgtc tcgtccccga aggcaaatac 420
 ctgaccgccc ttttaaaaga gttccgcgaa cagcgcaacc atatggcaat cgtcatcgac 480
 gaatacggcg gcacgtcggg ttttgtaact tttgaagaca tcatcgagca aatcgtcggc 540
 gacatcgaag atgagtttga cgaagacgaa agcgcggaca acatccacgc cgtttccgcc 600
 gaacgctggc gcatccacgc ggctaccgaa atcgaagaca tcaacgcctt tttcggcacg 660
 gaatacagca gcgaagaagc cgacaccatc ggcggccntg gtcattcagg aattgggnaca 720
 cctgcccgtg cgcggcgaaa aagtcnttat cggcgmnttg canttcacng tcgccnccgc 780
 ngacaaccgc cgcctgcata cgctgatggc gacccgcgtg aagtaagctc cgccgtttct 840
 gtacagttta ggatgacggt acgggcgttt tctgtttcaa tccgccccat ccgccanaca 900

taa

903

<210> 24
<211> 300
<212> PRT
<213> Neisseria meningitidis

<220>
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<222> (11)..(12)
<223> Xaa= any amino acid

<220>
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<222> (233)..(233)

<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (249)..(249)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (253)..(253)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (255)..(255)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (257)..(257)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (259)..(259)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (261)..(261)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (299)..(299)
<223> Xaa= any amino acid

<400> 24
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 20 25 30
 Arg Gln Ala His Glu Gln Glu Val Phe Asp Ala Asp Thr Leu Leu Arg
 35 40 45
 Leu Glu Lys Val Leu Asp Phe Ser Asp Leu Glu Val Arg Asp Ala Met
 50 55 60
 Ile Thr Arg Ser Arg Met Asn Val Leu Lys Glu Asn Asp Ser Ile Glu
 65 70 75 80
 Arg Ile Thr Ala Tyr Val Ile Asp Thr Ala His Ser Arg Phe Pro Val
 85 90 95
 Ile Gly Glu Asp Lys Asp Glu Val Leu Gly Ile Leu His Ala Lys Asp
 100 105 110
 Leu Leu Lys Tyr Met Phe Asn Pro Glu Gln Phe His Leu Lys Ser Ile
 115 120 125
 Leu Arg Pro Ala Val Phe Val Pro Glu Gly Lys Ser Leu Thr Ala Leu
 130 135 140
 Leu Lys Glu Phe Arg Glu Gln Arg Asn His Met Ala Ile Val Ile Asp
 145 150 155 160
 Glu Tyr Gly Gly Thr Ser Gly Leu Val Thr Phe Glu Asp Ile Ile Glu
 165 170 175
 Gln Ile Val Gly Asp Ile Glu Asp Glu Phe Asp Glu Asp Glu Ser Ala
 180 185 190
 Asp Asn Ile His Ala Val Ser Ala Glu Arg Trp Arg Ile His Ala Ala
 195 200 205
 Thr Glu Ile Glu Asp Ile Asn Ala Phe Phe Gly Thr Glu Tyr Ser Ser
 210 215 220
 Glu Glu Ala Asp Thr Ile Gly Gly Xaa Gly His Ser Gly Ile Gly Thr
 225 230 235 240
 Pro Ala Arg Ala Arg Arg Lys Ser Xaa Tyr Arg Arg Xaa Ala Xaa His
 245 250 255
 Xaa Arg Xaa Arg Xaa Gln Pro Pro Pro Ala Tyr Ala Asp Gly Asp Pro
 260 265 270
 Arg Glu Val Ser Ser Ala Val Ser Val Gln Phe Arg Met Thr Val Arg
 275 280 285
 Ala Phe Ser Val Ser Ile Arg Pro Ile Arg Xaa Thr
 290 295 300

<210> 25
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
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 <222> (1)..(8)
 <223> N= Unknown

<400> 25
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8

<210> 26
 <211> 287
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 26
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 Arg Leu Ala Arg Glu Pro Asp Ser Ala Glu Asp Val Leu Asn Leu Leu
 20 25 30
 Arg Gln Ala His Glu Gln Glu Val Phe Asp Ala Asp Thr Leu Thr Arg
 35 40 45
 Leu Glu Lys Val Leu Asp Phe Ala Glu Leu Glu Val Arg Asp Ala Met
 50 55 60
 Ile Thr Arg Ser Arg Met Asn Val Leu Lys Glu Asn Asp Ser Ile Glu
 65 70 75 80
 Arg Ile Thr Ala Tyr Val Ile Asp Thr Ala His Ser Arg Phe Pro Val
 85 90 95
 Ile Gly Glu Asp Lys Asp Glu Val Leu Gly Ile Leu His Ala Lys Asp
 100 105 110
 Leu Leu Lys Tyr Met Phe Asn Pro Glu Gln Phe His Leu Lys Ser Val
 115 120 125
 Leu Arg Pro Ala Val Phe Val Pro Glu Gly Lys Ser Leu Thr Ala Leu
 130 135 140
 Leu Lys Glu Phe Arg Glu Gln Arg Asn His Met Ala Ile Val Ile Asp
 145 150 155 160
 Glu Tyr Gly Gly Thr Ser Gly Leu Val Thr Phe Glu Asp Ile Ile Glu
 165 170 175
 Gln Ile Val Gly Asp Ile Glu Asp Glu Phe Asp Glu Asp Glu Ser Ala
 180 185 190
 Asp Asp Ile His Ser Val Ser Ala Glu Arg Trp Arg Ile His Ala Ala

195	200	205
Thr Glu Ile Glu Asp Ile Asn Ala Phe Phe Gly Thr Glu Tyr Gly Ser		
210	215	220
Glu Glu Ala Asp Thr Ile Arg Arg Leu Gly His Ser Gly Ile Gly Thr		
225	230	235 240
Pro Ala Arg Ala Arg Arg Lys Ser Pro Tyr Arg Arg Phe Ala Val His		
	245	250 255
Arg Arg Pro Arg Arg Gln Pro Pro Pro Ala His Ala Asp Gly Asp Pro		
	260	265 270
Arg Glu Val Ser Arg Ala Cys Pro His Arg Arg Phe Cys Thr Val		
275	280	285

<210> 27

<211> 915

<212> DNA

<213> Neisseria gonorrhoeae

<400> 27

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tttgatgccg acacactgac ccggctggaa aaagtattgg actttgccga gctggaagtg	180
cgcgatgcga tgattacgcg cagccgcatg aacgtattga aagaaaacga cagcatcgaa	240
cgcatcaccg cctacgtcat cgataccgcc cattcgcgct tccccgtcat cggcgaagac	300
aaagacgaag ttttgggcat tttgcacgcc aaagacctgc tcaaatatat gttcaacccc	360
gagcagttcc acctgaaatc cgtcttgccg cctgccgttt tcgtgcccga aggcaaactc	420
ttgaccgccc ttttaaaaaga gttccgcgaa cagcgcaacc atatggcaat cgtcatcgac	480
gaatacggcg gcacgtcggg tttggtcacc tttgaagaca tcatcgagca aatcgtcggg	540
gacatcgaag acgagtttga cgaagacgaa agcgccgacg acatccactc cgtttccgcc	600
gaacgctggc gcatccacgc ggctaccgaa atcgaagaca tcaacgcctt tttcggtagc	660
gaatacggca gcgaagaagc cgacaccatc cggcggcttg gtcattcagg aattgggaca	720
cctgcccgtg cgccgcgaaa aagtccttat cggcggtttg cagttcaccg tgcgccgcgc	780
cgacaaccgc cgctgcaca cgctgatggc gacccgctg aagtaagcag agcctgcccg	840
accgcccgtt ctgcacagtt taggatgacg gtacggtcgt tttctgtttc aatccgcccc	900
atccgcaaaa cataa	915

<210> 28

<211> 304

<212> PRT

<213> Neisseria gonorrhoeae

<400> 28

Met Asp Gly Ala Gln Pro Lys Thr Asn Phe Phe Glu Arg Leu Ile Ala	
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Arg Leu Ala Arg Glu Pro Asp Ser Ala Glu Asp Val Leu Asn Leu Leu	
20	30
Arg Gln Ala His Glu Gln Glu Val Phe Asp Ala Asp Thr Leu Thr Arg	
35	45

Leu Glu Lys Val Leu Asp Phe Ala Glu Leu Glu Val Arg Asp Ala Met
50 55 60

Ile Thr Arg Ser Arg Met Asn Val Leu Lys Glu Asn Asp Ser Ile Glu
65 70 75 80

Arg Ile Thr Ala Tyr Val Ile Asp Thr Ala His Ser Arg Phe Pro Val
85 90 95

Ile Gly Glu Asp Lys Asp Glu Val Leu Gly Ile Leu His Ala Lys Asp
100 105 110

Leu Leu Lys Tyr Met Phe Asn Pro Glu Gln Phe His Leu Lys Ser Val
115 120 125

Leu Arg Pro Ala Val Phe Val Pro Glu Gly Lys Ser Leu Thr Ala Leu
130 135 140

Leu Lys Glu Phe Arg Glu Gln Arg Asn His Met Ala Ile Val Ile Asp

145 150 155 160

Glu Tyr Gly Gly Thr Ser Gly Leu Val Thr Phe Glu Asp Ile Ile Glu
165 170 175

Gln Ile Val Gly Asp Ile Glu Asp Glu Phe Asp Glu Asp Glu Ser Ala
180 185 190

Asp Asp Ile His Ser Val Ser Ala Glu Arg Trp Arg Ile His Ala Ala
195 200 205

Thr Glu Ile Glu Asp Ile Asn Ala Phe Phe Gly Thr Glu Tyr Gly Ser
210 215 220

Glu Glu Ala Asp Thr Ile Arg Arg Leu Gly His Ser Gly Ile Gly Thr
225 230 235 240

Pro Ala Arg Ala Arg Arg Lys Ser Pro Tyr Arg Arg Phe Ala Val His
245 250 255

Arg Arg Pro Arg Arg Gln Pro Pro Pro Ala His Ala Asp Gly Asp Pro
260 265 270

Arg Glu Val Ser Arg Ala Cys Pro Thr Ala Val Ser Ala Gln Phe Arg
275 280 285

Met Thr Val Arg Ser Phe Ser Val Ser Ile Arg Pro Ile Arg Gln Thr
290 295 300

<210> 29

<211> 563

<212> DNA

<213> Neisseria meningitidis

<400> 29

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aatgaaaaac	tgatggcgga	agttgcgccc	gatgccttca	gcggcaatcc	tgaagggcag	180
tttttccccg	acagctacga	aatcgatgcg	ggcggcagtg	atttgcagat	ttaccaaacc	240
gcctacaagg	gcgatgcaac	gccgcctgaa	tgagggcatg	ggaaagcagg	caggacgggc	300
tgccttataa	aaacccttat	gaaatgctga	ttatggcgar	cctggtcgaa	aaggaaacag	360
ggcatgaagc	cgascscgac	catgtcgctt	ccgtcttcgt	caaccgcctg	aaaatcggtg	420
tgcgcctgca	aaccgasscg	tccgtgattt	acggcatggg	tgcggcatac	aagggcaaaa	480
tccgtaaagc	cgacctgcgc	cgcgacacgc	cgtacaacac	ctacacgcgc	ggcggctctgc	540
cgccaacccc	gattgcgctg	ccc				563

<210> 30
 <211> 187
 <212> PRT
 <213> *Neisseria meningitidis*

<220>
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 <222> (113)..(113)
 <223> Xaa= any amin acid

<220>
 <221> misc_feature
 <222> (124)..(125)
 <223> Xaa= any amin acid

<220>
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 <222> (145)..(146)
 <223> Xaa= any amin acid

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 Ser Arg Phe Ser His Met Arg Lys Val Ile Asp Ala Thr Pro Asp Ile
 20 25 30
 Gly His Asp Thr Lys Gly Trp Ser Asn Glu Lys Leu Met Ala Glu Val
 35 40 45
 Ala Pro Asp Ala Phe Ser Gly Asn Pro Glu Gly Gln Phe Phe Pro Asp
 50 55 60
 Ser Tyr Glu Ile Asp Ala Gly Gly Ser Asp Leu Gln Ile Tyr Gln Thr
 65 70 75 80
 Ala Tyr Lys Ala Met Gln Arg Arg Leu Asn Glu Ala Trp Glu Ser Arg
 85 90 95
 Gln Asp Gly Leu Pro Tyr Lys Asn Pro Tyr Glu Met Leu Ile Met Ala
 100 105 110
 Xaa Leu Val Glu Lys Glu Thr Gly His Glu Ala Xaa Xaa Asp His Val
 115 120 125

Ala Ser Val Phe Val Asn Arg Leu Lys Ile Gly Met Arg Leu Gln Thr
130 135 140

Xaa Xaa Ser Val Ile Tyr Gly Met Gly Ala Ala Tyr Lys Gly Lys Ile
145 150 155 160

Arg Lys Ala Asp Leu Arg Arg Asp Thr Pro Tyr Asn Thr Tyr Thr Arg
165 170 175

Gly Gly Leu Pro Pro Thr Pro Ile Ala Leu Pro
180 185

<210> 31
<211> 996
<212> DNA
<213> Neisseria meningitidis

<400> 31
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gccgcgctgc tttttgttcc taaggataac ggcagggcat accgaatcaa aattgccaaa 120
aaccagggtta tttcgtcggc cggcaggaaa cttgccgaag accgcatcgt gttcagcagg 180

catgttttga cggcggcggc ctacgttttg ggtgtgcaca acaggctgca tacggggacg 240
tacagattgc cttcgggaagt gtctgcttgg gatattctgc agaaaatgcg cggcggcagg 300
ccggattccg ttaccgtgca gattatcgaa ggttcgcggt tttcgcataat gaggaagtc 360
atcgacgcaa cggccgacat cggacacgac accaaaggct ggagcaatga aaaactgatg 420
gcggaagttg cggccgatgc cttcagcggc aatcctgaag ggcagttttt ccccgacagc 480
tacgaaatcg atgcgggagg cagtgatttg cagatttacc aaaccgccta caaggcgatg 540
caacgccgcc tgaatgaggc atgggaaagc aggcaggacg ggctgcctta taaaaaccct 600
tatgaaatgc tgattatggc gagcctggtc gaaaaggaaa cagggcatga agccgaccgc 660
gaccatgtcg cttccgtctt cgtcaaccgc ctgaaaatcg gtatgcgcct gcaaaccgac 720
ccgtccgtga tttacggcat gggcggcggc tacaagggca aaatccgtaa agccgacctg 780
cgcccgacga cggcgtaaa cacctacacg cgccggcggtc tgccgcaaac cccgattgag 840
ctgcccggca aggcggcact cgatgccgcc gcccatccgt ccggcgaaaa atacctgtat 900
ttcgtgtcca aaatggacgg caggggcttg agccagttca gccatgattt gaccgaacac 960
aatgccgccc tccgcaaata ttttttgaaa aaataa 996

<210> 32
<211> 331
<212> PRT
<213> Neisseria meningitidis

<400> 32
Met Leu Arg Lys Leu Leu Lys Trp Ser Ala Val Phe Leu Thr Val Ser
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Ala Ala Val Phe Ala Ala Leu Leu Phe Val Pro Lys Asp Asn Gly Arg
20 25 30

Ala Tyr Arg Ile Lys Ile Ala Lys Asn Gln Gly Ile Ser Ser Val Gly
35 40 45

Arg Lys Leu Ala Glu Asp Arg Ile Val Phe Ser Arg His Val Leu Thr
50 55 60

Ala Ala Ala Tyr Val Leu Gly Val His Asn Arg Leu His Thr Gly Thr

65	70	75	80
Tyr Arg Leu Pro Ser Glu Val Ser Ala Trp Asp Ile Leu Gln Lys Met	85	90	95
Arg Gly Gly Arg Pro Asp Ser Val Thr Val Gln Ile Ile Glu Gly Ser	100	105	110
Arg Phe Ser His Met Arg Lys Val Ile Asp Ala Thr Pro Asp Ile Gly	115	120	125
His Asp Thr Lys Gly Trp Ser Asn Glu Lys Leu Met Ala Glu Val Ala	130	135	140
Pro Asp Ala Phe Ser Gly Asn Pro Glu Gly Gln Phe Phe Pro Asp Ser	145	150	155
Tyr Glu Ile Asp Ala Gly Gly Ser Asp Leu Gln Ile Tyr Gln Thr Ala	165	170	175
Tyr Lys Ala Met Gln Arg Arg Leu Asn Glu Ala Trp Glu Ser Arg Gln	180	185	190
Asp Gly Leu Pro Tyr Lys Asn Pro Tyr Glu Met Leu Ile Met Ala Ser	195	200	205
Leu Val Glu Lys Glu Thr Gly His Glu Ala Asp Arg Asp His Val Ala	210	215	220
Ser Val Phe Val Asn Arg Leu Lys Ile Gly Met Arg Leu Gln Thr Asp	225	230	235
Pro Ser Val Ile Tyr Gly Met Gly Ala Ala Tyr Lys Gly Lys Ile Arg	245	250	255
Lys Ala Asp Leu Arg Arg Asp Thr Pro Tyr Asn Thr Tyr Thr Arg Gly	260	265	270
Gly Leu Pro Pro Thr Pro Ile Ala Leu Pro Gly Lys Ala Ala Leu Asp	275	280	285
Ala Ala Ala His Pro Ser Gly Glu Lys Tyr Leu Tyr Phe Val Ser Lys	290	295	300
Met Asp Gly Thr Gly Leu Ser Gln Phe Ser His Asp Leu Thr Glu His	305	310	315
Asn Ala Ala Val Arg Lys Tyr Ile Leu Lys Lys	325	330	

<210> 33
 <211> 996
 <212> DNA
 <213> Neisseria meningitidis

<400> 33

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aaccagggta	tttcgtcggg	cggcaggaaa	cttgccgaag	accgcatcgt	gttcagcagg	180
catgttttga	cggcggcggc	ctacgttttg	ggtgtgcaca	acaggctgca	tacggggacg	240
tacagactgc	cttcggaagt	gtctgcttgg	gatatcttgc	agaaaatgcg	cggcggcagg	300
ccggattccg	ttaccgtgca	gattatcgaa	ggttcgcgtt	tttcgcatat	gaggaaagtc	360
atcgacgcaa	cgcccgacat	cgaacacgac	accaaaggct	ggagcaatga	aaaactgatg	420
gcggaagtgt	cccctgatgc	cttcagcggc	aatcctgaag	ggcagttttt	ccccgacagc	480
tacgaaatcg	atgcgggagg	cagcgattta	cggattttacc	aaatcgcccta	caaggcgatg	540
caacgccgac	tgaatgaggc	atgggaaagc	aggcaggacg	ggctgcctta	taaaaaccct	600
tatgaaatgc	tgattatggc	gagcctgatc	gaaaaggaaa	cagggcatga	agccgaccgc	660
gaccatgtcg	cttcgcgtct	cgtcaaccgc	ctgaaaatcg	gtatgcgcct	gcaaaccgac	720
ccgtccgtga	tttacggcat	gggtgcggca	tacaagggca	aaatccgtaa	agccgacctg	780
cgcgcgcaca	cgcggtacaa	cacctacacg	cgcggcggtc	tgccgccaac	cccgatcgcg	840
ctgcccggca	aggcggcact	cgatgccgcc	gcccattccgt	ccggtgaaaa	atacctgtat	900
ttcgtgtcca	aaatggacgg	tacgggcttg	agccagttca	gccatgattt	gaccgaacac	960
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<210> 34
 <211> 331
 <212> PRT
 <213> Neisseria meningitidis

<400> 34
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 Ala Ala Val Phe Ala Ala Leu Leu Phe Val Pro Lys Asp Asn Gly Arg
 20 25 30
 Ala Tyr Arg Ile Lys Ile Ala Lys Asn Gln Gly Ile Ser Ser Val Gly
 35 40 45
 Arg Lys Leu Ala Glu Asp Arg Ile Val Phe Ser Arg His Val Leu Thr
 50 55 60
 Ala Ala Ala Tyr Val Leu Gly Val His Asn Arg Leu His Thr Gly Thr
 65 70 75 80
 Tyr Arg Leu Pro Ser Glu Val Ser Ala Trp Asp Ile Leu Gln Lys Met
 85 90 95
 Arg Gly Gly Arg Pro Asp Ser Val Thr Val Gln Ile Ile Glu Gly Ser
 100 105 110
 Arg Phe Ser His Met Arg Lys Val Ile Asp Ala Thr Pro Asp Ile Glu
 115 120 125
 His Asp Thr Lys Gly Trp Ser Asn Glu Lys Leu Met Ala Glu Val Ala
 130 135 140
 Pro Asp Ala Phe Ser Gly Asn Pro Glu Gly Gln Phe Phe Pro Asp Ser
 145 150 155 160
 Tyr Glu Ile Asp Ala Gly Gly Ser Asp Leu Arg Ile Tyr Gln Ile Ala

165	170	175
Tyr Lys Ala Met Gln Arg Arg Leu Asn Glu Ala Trp Glu Ser Arg Gln		
180	185	190
Asp Gly Leu Pro Tyr Lys Asn Pro Tyr Glu Met Leu Ile Met Ala Ser		
195	200	205
Leu Ile Glu Lys Glu Thr Gly His Glu Ala Asp Arg Asp His Val Ala		
210	215	220
Ser Val Phe Val Asn Arg Leu Lys Ile Gly Met Arg Leu Gln Thr Asp		
225	230	235
Pro Ser Val Ile Tyr Gly Met Gly Ala Ala Tyr Lys Gly Lys Ile Arg		
245	250	255
Lys Ala Asp Leu Arg Arg Asp Thr Pro Tyr Asn Thr Tyr Thr Arg Gly		
260	265	270
Gly Leu Pro Pro Thr Pro Ile Ala Leu Pro Gly Lys Ala Ala Leu Asp		
275	280	285
Ala Ala Ala His Pro Ser Gly Glu Lys Tyr Leu Tyr Phe Val Ser Lys		

290	295	300
Met Asp Gly Thr Gly Leu Ser Gln Phe Ser His Asp Leu Thr Glu His		
305	310	315
Asn Ala Ala Val Arg Lys Tyr Ile Leu Lys Lys		
325	330	

<210> 35
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 35
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8

<210> 36
 <211> 236
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 36
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 1 5 10 15

Ser Arg Phe Ser His Met Arg Lys Val Ile Asp Ala Thr Pro Asp Ile

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Gly His Asp Thr Lys Gly Trp Ser Asn Glu Lys Leu Met Ala Glu Val		
35	40	45
Ala Pro Asp Ala Phe Ser Gly Asn Pro Glu Gly Gln Phe Phe Pro Asp		
50	55	60
Ser Tyr Glu Ile Asp Ala Gly Gly Ser Asp Leu Gln Ile Tyr Gln Thr		
65	70	75
Ala Tyr Lys Ala Met Gln Arg Arg Leu Asn Glu Ala Trp Ala Gly Arg		
85	90	95
Gln Asp Gly Leu Pro Tyr Lys Asn Pro Tyr Glu Met Leu Ile Met Ala		
100	105	110
Ser Leu Ile Glu Lys Glu Thr Gly His Glu Ala Asp Arg Asp His Val		
115	120	125
Ala Ser Val Phe Val Asn Arg Leu Lys Ile Gly Met Arg Leu Gln Thr		
130	135	140
Asp Pro Ser Val Ile Tyr Gly Met Gly Ala Ala Tyr Lys Gly Lys Ile		
145	150	155
Arg Lys Ala Asp Leu Arg Arg Asp Thr Pro Tyr Asn Thr Tyr Thr Gly		
165	170	175
Gly Gly Leu Pro Pro Thr Arg Ile Ala Leu Pro Gly Lys Ala Ala Met		
180	185	190
Asp Ala Ala Ala His Pro Ser Gly Glu Lys Tyr Leu Tyr Phe Val Ser		
195	200	205
Lys Met Asp Gly Thr Gly Leu Ser Gln Phe Ser His Asp Leu Thr Glu		
210	215	220
His Asn Ala Ala Val Arg Lys Tyr Ile Leu Lys Lys		
225	230	235

<210> 37
 <211> 897
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 37	
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aacaggctgc atacggggac gtacagattg ccttcggaag tgtctgcttg ggatatcttg	180
cagaaaatgc gcggcgagc gccggattcc gttaccgtgc agattatcga aggttcgcgt	240
ttttcgcata tgaggaaagt catcgacgca acgcccagaca tcggacacga caccaaaggc	300
tggagcaatg aaaaactgat ggcggaagtt gcgcccgatg ccttcagcgg caatcctgaa	360
gggcagtttt ttcccagacag ctacgaaatc gatgcgggcg gcagcgattt gcagatttac	420
caaaccgcct acaaggcgat gcaacgccgc ctgaacgagg catgggcagg caggcaggac	480
gggctgcctt ataaaaaccc ttatgaaatg ctgattatgg cgagcctgat cgaaaaggaa	540

acggggcatg aggccgaccg cgaccatgtc gcttccgtct tcgtcaaccg cctgaaaatc 600
 ggtatgcgcc tgcaaaccga cccgtccgtg atttacggca tgggtgcggc atacaagggc 660
 aaaatccgta aagccgacct gcgccgcgac acgccgtaca acacctatac gggcgggggc 720
 ttgccgccaa cccggattgc gctgcccggc aaggcggaac tggatgccgc cggccacccg 780
 tccggcgaaa aatacctgta tttcgtgtcc aaaatggacg gcacgggctt gagccagttc 840
 agccatgatt tgaccgaaca caacgccgcc gtccgcaa atattttgaa aaaataa 897

<210> 38
 <211> 298
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 38
 Tyr Arg Ile Lys Ile Ala Lys Asn Gln Gly Ile Ser Ser Val Gly Arg
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 Lys Leu Ala Glu Asp Arg Ile Val Phe Ser Arg His Val Leu Thr Ala
 20 25 30
 Ala Ala Tyr Val Leu Gly Val His Asn Arg Leu His Thr Gly Thr Tyr
 35 40 45
 Arg Leu Pro Ser Glu Val Ser Ala Trp Asp Ile Leu Gln Lys Met Arg
 50 55 60
 Gly Gly Arg Pro Asp Ser Val Thr Val Gln Ile Ile Glu Gly Ser Arg
 65 70 75 80
 Phe Ser His Met Arg Lys Val Ile Asp Ala Thr Pro Asp Ile Gly His
 85 90 95
 Asp Thr Lys Gly Trp Ser Asn Glu Lys Leu Met Ala Glu Val Ala Pro
 100 105 110
 Asp Ala Phe Ser Gly Asn Pro Glu Gly Gln Phe Phe Pro Asp Ser Tyr
 115 120 125
 Glu Ile Asp Ala Gly Gly Ser Asp Leu Gln Ile Tyr Gln Thr Ala Tyr
 130 135 140
 Lys Ala Met Gln Arg Arg Leu Asn Glu Ala Trp Ala Gly Arg Gln Asp
 145 150 155 160
 Gly Leu Pro Tyr Lys Asn Pro Tyr Glu Met Leu Ile Met Ala Ser Leu
 165 170 175
 Ile Glu Lys Glu Thr Gly His Glu Ala Asp Arg Asp His Val Ala Ser
 180 185 190
 Val Phe Val Asn Arg Leu Lys Ile Gly Met Arg Leu Gln Thr Asp Pro
 195 200 205
 Ser Val Ile Tyr Gly Met Gly Ala Ala Tyr Lys Gly Lys Ile Arg Lys
 210 215 220

Ala Asp Leu Arg Arg Asp Thr Pro Tyr Asn Thr Tyr Thr Gly Gly Gly
 225 230 235 240

Leu Pro Pro Thr Arg Ile Ala Leu Pro Gly Lys Ala Ala Met Asp Ala
 245 250 255

Ala Ala His Pro Ser Gly Glu Lys Tyr Leu Tyr Phe Val Ser Lys Met
 260 265 270

Asp Gly Thr Gly Leu Ser Gln Phe Ser His Asp Leu Thr Glu His Asn
 275 280 285

Ala Ala Val Arg Lys Tyr Ile Leu Lys Lys
 290 295

<210> 39
 <211> 498
 <212> DNA
 <213> Neisseria meningitidis

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 cagcgttaca gcgaggaaga aatcaaaaac gaacgcgcac ggcttgccgc agtgggcgag 180
 cgggttaatc agatatttac gttgctggga ggggaaaccg ccttgcaaaa ggggcaggcg 240
 ggaacggctc tggcaacctc tatgctgatg ttggaacgca caaatcccc cgaagtcgcc 300
 gaacgcgcct tggaaatggc cgtgtcgtcg aacgcgtttg aacaggcgga aatgatttat 360

cagaaatggc ggcagattga gcctataccg ggtaaggcgc aaaaacgggc ggggtggctg 420
 cggaacgtgc tgaggggaaag aggaaatcag catctggacg gacgggaaga agtgctggct 480
 caggcggacg aaggacag 498

<210> 40
 <211> 166
 <212> PRT
 <213> Neisseria meningitidis

<400> 40
 Arg Phe Lys Met Leu Thr Val Leu Thr Ala Thr Leu Ile Ala Gly Gln
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Val Ser Ala Ala Gly Gly Gly Ala Gly Asp Met Lys Gln Pro Lys Glu
 20 25 30

Val Gly Lys Val Phe Arg Lys Gln Gln Arg Tyr Ser Glu Glu Glu Ile
 35 40 45

Lys Asn Glu Arg Ala Arg Leu Ala Ala Val Gly Glu Arg Val Asn Gln
 50 55 60

Ile Phe Thr Leu Leu Gly Gly Glu Thr Ala Leu Gln Lys Gly Gln Ala
 65 70 75 80

Gly Thr Ala Leu Ala Thr Tyr Met Leu Met Leu Glu Arg Thr Lys Ser
 85 90 95

Pro Glu Val Ala Glu Arg Ala Leu Glu Met Ala Val Ser Leu Asn Ala
100 105 110

Phe Glu Gln Ala Glu Met Ile Tyr Gln Lys Trp Arg Gln Ile Glu Pro
115 120 125

Ile Pro Gly Lys Ala Gln Lys Arg Ala Gly Trp Leu Arg Asn Val Leu
130 135 140

Arg Glu Arg Gly Asn Gln His Leu Asp Gly Arg Glu Glu Val Leu Ala
145 150 155 160

Gln Ala Asp Glu Gly Gln
165

<210> 41
<211> 1845
<212> DNA
<213> Neisseria meningitidis

<400> 41
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gtatctgccg ccggaggcgg tgcgggggat atgaaacagc cgaagggaagt cggaaagggt 120
ttcagaaagc agcagcggtta cagcgaggaa gaaatcaaaa acgaacgcgc acggcttgcg 180
gcagtgggcg agcgggttaa tcagatatatt acgttgctgg gaggggaaac cgccttgcaa 240
aaggggcagg cgggaacggc tctggcaacc tatatgctga tgttggaacg cacaaaatcc 300
cccgaagtcg ccgaacgcgc cttggaaatg gccgtgctgc tgaacgcgtt tgaacaggcg 360
gaaatgattt atcagaaatg gcggcagatt gagcctatac cgggtaaggc gcaaaaaacgg 420

gcgggggtggc tgcggaacgt gctgaggga aagaggaaatc agcatctgga cggactggaa 480
gaagtgtctg ctcaggcgga cgaaggacag aaccgcaggg tgtttttatt gttggcacia 540
gccgcgctgc aacaggacgg gttggcgcaa aaagcatcga aagcggttcg ccgcgcggcg 600
ttgaaatatg aacatctgcc cgaagcggcg gttgcccgat tgggtgttcag cgtacaggga 660
cgcgaaaagg aaaaggcaat cggagctttg cagcgtttgg cgaagctcga tacggaaata 720
ttgcccccca ctttaattgac gttgcgtctg actgcacgca aatatcccga aatactcgac 780
ggctttttcg agcagacaga caccaaaaac ctttcggccg tctggcagga aatggaaatt 840
atgaatctgg tttccctgca caggctggat gatgcctatg cgcgtttgaa cgtgctgttg 900
gaacgcaatc cgaatgcaga cctgtatatt caggcagcga tattggcggc aaaccgaaaa 960
gaagggtgctt ccgttatcga cggctacgcc gaaaaggcat acggcagggg gacggaggaa 1020
cagcggagca gggcggcgct aacggcgggc atgatgtatg ccgaccgcag ggattacgcc 1080
aaagtcaggc agtggtgaa aaaagtatcc gcgcgggaat acctgttcga caaagggtgtg 1140
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aggggtgcgga aacttcccga acagcagggg cggtatttta cggcagacaa tttgtccaaa 1260
atacagatgc tcgccctgtc gaagctgccc gataaacggg aggcctttgag ggggttgga 1320
aagattatcg aaaaaccgcc tgccggcagt aatacagagt tacaggcaga ggcattggta 1380
cagcggtcag ttgtttacga tcggcttggc aagcggaaaa aaatgatttc agatcttgaa 1440
agggcggttca ggcttgcaac cgataacgct cagattatga ataactctgg ctacagcctg 1500
ctgaccgatt ccaaacgttt ggacgaagg ttcgccctgc ttcagacggc ataccaaata 1560
aaccgggacg ataccgctgt caacgacagc ataggctggg cgtattacct gaaaggcgac 1620
gcggaaagcg cgtgcccgt tctgcggtat tcgtttgaaa acgaccccga gcccgagggt 1680
gccgcccatt tgggcgaagt gttgtgggca ttgggcgaac gcgatcaggc ggttgacgta 1740
tggaacgagg cggcacacct tacgggagac aagaaaatat ggcgggaaac gctcaaacgt 1800
cacggcatcg cattgccccca accttcccga aaacctcgga aataa 1845

<210> 42
<211> 614

<212> PRT

<213> Neisseria meningitidis

<400> 42

Met Leu Pro Asn Arg Phe Lys Met Leu Thr Val Leu Thr Ala Thr Leu
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Ile Ala Gly Gln Val Ser Ala Ala Gly Gly Gly Ala Gly Asp Met Lys
20 25 30

Gln Pro Lys Glu Val Gly Lys Val Phe Arg Lys Gln Gln Arg Tyr Ser
35 40 45

Glu Glu Glu Ile Lys Asn Glu Arg Ala Arg Leu Ala Ala Val Gly Glu
50 55 60

Arg Val Asn Gln Ile Phe Thr Leu Leu Gly Gly Glu Thr Ala Leu Gln
65 70 75 80

Lys Gly Gln Ala Gly Thr Ala Leu Ala Thr Tyr Met Leu Met Leu Glu
85 90 95

Arg Thr Lys Ser Pro Glu Val Ala Glu Arg Ala Leu Glu Met Ala Val
100 105 110

Ser Leu Asn Ala Phe Glu Gln Ala Glu Met Ile Tyr Gln Lys Trp Arg
115 120 125

Gln Ile Glu Pro Ile Pro Gly Lys Ala Gln Lys Arg Ala Gly Trp Leu

130

135

140

Arg Asn Val Leu Arg Glu Arg Gly Asn Gln His Leu Asp Gly Leu Glu
145 150 155 160

Glu Val Leu Ala Gln Ala Asp Glu Gly Gln Asn Arg Arg Val Phe Leu
165 170 175

Leu Leu Ala Gln Ala Ala Val Gln Gln Asp Gly Leu Ala Gln Lys Ala
180 185 190

Ser Lys Ala Val Arg Arg Ala Ala Leu Lys Tyr Glu His Leu Pro Glu
195 200 205

Ala Ala Val Ala Asp Val Val Phe Ser Val Gln Gly Arg Glu Lys Glu
210 215 220

Lys Ala Ile Gly Ala Leu Gln Arg Leu Ala Lys Leu Asp Thr Glu Ile
225 230 235 240

Leu Pro Pro Thr Leu Met Thr Leu Arg Leu Thr Ala Arg Lys Tyr Pro
245 250 255

Glu Ile Leu Asp Gly Phe Phe Glu Gln Thr Asp Thr Gln Asn Leu Ser
260 265 270

Ala Val Trp Gln Glu Met Glu Ile Met Asn Leu Val Ser Leu His Arg
 275 280 285
 Leu Asp Asp Ala Tyr Ala Arg Leu Asn Val Leu Leu Glu Arg Asn Pro
 290 295 300
 Asn Ala Asp Leu Tyr Ile Gln Ala Ala Ile Leu Ala Ala Asn Arg Lys
 305 310 315 320
 Glu Gly Ala Ser Val Ile Asp Gly Tyr Ala Glu Lys Ala Tyr Gly Arg
 325 330 335
 Gly Thr Glu Glu Gln Arg Ser Arg Ala Ala Leu Thr Ala Ala Met Met
 340 345 350
 Tyr Ala Asp Arg Arg Asp Tyr Ala Lys Val Arg Gln Trp Leu Lys Lys
 355 360 365
 Val Ser Ala Pro Glu Tyr Leu Phe Asp Lys Gly Val Leu Ala Ala Ala
 370 375 380
 Ala Ala Val Glu Leu Asp Gly Gly Arg Ala Ala Leu Arg Gln Ile Gly
 385 390 395 400
 Arg Val Arg Lys Leu Pro Glu Gln Gln Gly Arg Tyr Phe Thr Ala Asp
 405 410 415
 Asn Leu Ser Lys Ile Gln Met Leu Ala Leu Ser Lys Leu Pro Asp Lys
 420 425 430
 Arg Glu Ala Leu Arg Gly Leu Asp Lys Ile Ile Glu Lys Pro Pro Ala
 435 440 445
 Gly Ser Asn Thr Glu Leu Gln Ala Glu Ala Leu Val Gln Arg Ser Val
 450 455 460
 Val Tyr Asp Arg Leu Gly Lys Arg Lys Lys Met Ile Ser Asp Leu Glu
 465 470 475 480
 Arg Ala Phe Arg Leu Ala Pro Asp Asn Ala Gln Ile Met Asn Asn Leu
 485 490 495
 Gly Tyr Ser Leu Leu Thr Asp Ser Lys Arg Leu Asp Glu Gly Phe Ala
 500 505 510
 Leu Leu Gln Thr Ala Tyr Gln Ile Asn Pro Asp Asp Thr Ala Val Asn
 515 520 525
 Asp Ser Ile Gly Trp Ala Tyr Tyr Leu Lys Gly Asp Ala Glu Ser Ala
 530 535 540
 Leu Pro Tyr Leu Arg Tyr Ser Phe Glu Asn Asp Pro Glu Pro Glu Val
 545 550 555 560
 Ala Ala His Leu Gly Glu Val Leu Trp Ala Leu Gly Glu Arg Asp Gln

	565		570		575
Ala Val Asp Val Trp Thr Gln Ala Ala His Leu Thr Gly Asp Lys Lys					
	580		585		590
Ile Trp Arg Glu Thr Leu Lys Arg His Gly Ile Ala Leu Pro Gln Pro					
	595		600		605
Ser Arg Lys Pro Arg Lys					
	610				

<210> 43
 <211> 1839
 <212> DNA
 <213> Neisseria meningitidis

<220>
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 <222> (217)..(217)
 <223> N= Unknown

<220>
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 <222> (333)..(333)
 <223> N= Unknown

<220>
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 <222> (478)..(478)
 <223> N= Unknown

<220>
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 <222> (499)..(499)
 <223> N= Unknown

<220>
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 <222> (653)..(653)
 <223> N= Unknown

<220>
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 <222> (958)..(958)
 <223> N= Unknown

<220>
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 <222> (1165)..(1165)
 <223> N= Unknown

<220>
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 <222> (1609)..(1609)
 <223> N= Unknown

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aagcagcagc gttacagcga ggaagaaatc aaaaacgaac gcgcacggct tgccggcagt 180
ggcgagcggg ttaatcagat atttacgttg ctgggagggg aaaccgcctt gcaaaagggg 240
caggcgggaa cggtcttgga aacctatatg ctgatgttgg aacgcacaaa atccccgaa 300
gtcgccgaac gcgccttgga aatggccgtg tcnctgaacg cgtttgaaca ggcggaaatg 360
atztatcaga aatggcgga gattgagcct ataccgggta aggcgcaaaa acgggcgggg 420
tggtctcgga acgtgctgag ggaaagagga aatcagcatc tagacggact ggaagaantg 480
ctggctcagg cggacgaang acagaaccgc aggggtgtttt tattgttggc acaagccgcc 540
gtgcaacagg acgggttggc gcaaaaagca tcgaaagcgg ttcgccgcgc gccgttgaga 600
tatgaacatc tgcccgaagc ggcggttggc gatgtggtgt tcagcgtaca ggnacgcgaa 660
aaggaaaagg caatcgagc tttgcagcgt ttggcggaagc tcgatacggg aatattgccc 720
cccactttta tgacgttgcg tctgactgca cgcaaatatc ccgaaatact cgacggcttt 780
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ctggtttccc tgcacaggct ggatgatgcc tatgcgcgtt tgaacgtgct gttggaacgc 900
aatccgaatg cagacctgta tattcaggca gcgatattgg cggcaaaccg aaaagaangt 960
gcttcggtta tcgacggcta cgccgaaaag gcatacggca gggggacggg ggaacagcgg 1020
ggcaggcgcg caatgacggc ggcgatgata tatgccgacc gaagggatta caccaaagtc 1080
aggcagtggt tgaaaaaagt gtccgcgcgc gaatacctgt tcgacaaagg tgtgctggcg 1140
gctgcggcgg ctgtcgagtt ggacngcggc agggcggtt tgccgcagat cggcagggtg 1200
cggaaacttc ccgaacagca gggcggtat tttacggcag acaatttgtc caaaatacag 1260
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gattccaaac gtttgagcga aggttcgcc ctgcttcaga cggcatacca aatcaaccgc 1560
gacgataccg ctgtcaacga cagcataggc tgggcgtatt acctgaaang cgacgcggaa 1620
agcgcgtgc cgtatctgcg gtattcggtt gaaaacgacc ccgagccga agttgccgcc 1680
catttgggcg aagtgttgtg ggcattgggc gaacgcgatc aggcgggtga cgtatggacg 1740
caggcgccac accttacggg agacaagaaa atatggcggg aaacgctcaa acgtcacggc 1800

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atcgcattgc cccaaccttc ccgaaaacct cggaaataa 1839

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<210> 44
<211> 612
<212> PRT
<213> Neisseria meningitidis

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<220>
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<222> (73)..(73)
<223> Xaa= any amino acid

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<220>
<221> misc_feature
<222> (160)..(160)
<223> Xaa= any amino acid

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<220>
<221> misc_feature
<222> (167)..(167)
<223> Xaa= any amino acid

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<220>

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<221> misc_feature
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 <223> Xaa= any amino acid

<220>
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 <223> Xaa= any amino acid

<220>
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 <222> (537)..(537)
 <223> Xaa= any amino acid

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 20 25 30
 Lys Glu Val Gly Lys Val Phe Arg Lys Gln Gln Arg Tyr Ser Glu Glu
 35 40 45
 Glu Ile Lys Asn Glu Arg Ala Arg Leu Ala Ala Val Gly Glu Arg Val
 50 55 60
 Asn Gln Ile Phe Thr Leu Leu Gly Xaa Glu Thr Ala Leu Gln Lys Gly
 65 70 75 80
 Gln Ala Gly Thr Ala Leu Ala Thr Tyr Met Leu Met Leu Glu Arg Thr
 85 90 95
 Lys Ser Pro Glu Val Ala Glu Arg Ala Leu Glu Met Ala Val Ser Leu
 100 105 110
 Asn Ala Phe Glu Gln Ala Glu Met Ile Tyr Gln Lys Trp Arg Gln Ile
 115 120 125
 Glu Pro Ile Pro Gly Lys Ala Gln Lys Arg Ala Gly Trp Leu Arg Asn
 130 135 140
 Val Leu Arg Glu Arg Gly Asn Gln His Leu Asp Gly Leu Glu Glu Xaa
 145 150 155 160
 Leu Ala Gln Ala Asp Glu Xaa Gln Asn Arg Arg Val Phe Leu Leu Leu
 165 170 175
 Ala Gln Ala Ala Val Gln Gln Asp Gly Leu Ala Gln Lys Ala Ser Lys
 180 185 190

Ala Val Arg Arg Ala Ala Leu Arg Tyr Glu His Leu Pro Glu Ala Ala
195 200 205

Val Ala Asp Val Val Phe Ser Val Gln Xaa Arg Glu Lys Glu Lys Ala
210 215 220

Ile Gly Ala Leu Gln Arg Leu Ala Lys Leu Asp Thr Glu Ile Leu Pro
225 230 235 240

Pro Thr Leu Met Thr Leu Arg Leu Thr Ala Arg Lys Tyr Pro Glu Ile
245 250 255

Leu Asp Gly Phe Phe Glu Gln Thr Asp Thr Gln Asn Leu Ser Ala Val
260 265 270

Trp Gln Glu Met Glu Ile Met Asn Leu Val Ser Leu His Arg Leu Asp
275 280 285

Asp Ala Tyr Ala Arg Leu Asn Val Leu Leu Glu Arg Asn Pro Asn Ala
290 295 300

Asp Leu Tyr Ile Gln Ala Ala Ile Leu Ala Ala Asn Arg Lys Glu Xaa
305 310 315 320

Ala Ser Val Ile Asp Gly Tyr Ala Glu Lys Ala Tyr Gly Arg Gly Thr
325 330 335

Gly Glu Gln Arg Gly Arg Ala Ala Met Thr Ala Ala Met Ile Tyr Ala
340 345 350

Asp Arg Arg Asp Tyr Thr Lys Val Arg Gln Trp Leu Lys Lys Val Ser
355 360 365

Ala Pro Glu Tyr Leu Phe Asp Lys Gly Val Leu Ala Ala Ala Ala Ala
370 375 380

Val Glu Leu Asp Xaa Gly Arg Ala Ala Leu Arg Gln Ile Gly Arg Val
385 390 395 400

Arg Lys Leu Pro Glu Gln Gln Gly Arg Tyr Phe Thr Ala Asp Asn Leu
405 410 415

Ser Lys Ile Gln Met Phe Ala Leu Ser Lys Leu Pro Asp Lys Arg Glu
420 425 430

Ala Leu Arg Gly Leu Asp Lys Ile Ile Glu Lys Pro Pro Ala Gly Ser
435 440 445

Asn Thr Glu Leu Gln Ala Glu Ala Leu Val Gln Arg Ser Val Val Tyr
450 455 460

Asp Arg Leu Gly Lys Arg Lys Lys Met Ile Ser Asp Leu Glu Arg Ala
465 470 475 480

Phe Arg Leu Ala Pro Asp Asn Ala Gln Ile Met Asn Asn Leu Gly Tyr
 485 490 495
 Ser Leu Leu Ser Asp Ser Lys Arg Leu Asp Glu Gly Phe Ala Leu Leu
 500 505 510
 Gln Thr Ala Tyr Gln Ile Asn Pro Asp Asp Thr Ala Val Asn Asp Ser
 515 520 525
 Ile Gly Trp Ala Tyr Tyr Leu Lys Xaa Asp Ala Glu Ser Ala Leu Pro
 530 535 540
 Tyr Leu Arg Tyr Ser Phe Glu Asn Asp Pro Glu Pro Glu Val Ala Ala
 545 550 555 560
 His Leu Gly Glu Val Leu Trp Ala Leu Gly Glu Arg Asp Gln Ala Val
 565 570 575
 Asp Val Trp Thr Gln Ala Ala His Leu Thr Gly Asp Lys Lys Ile Trp
 580 585 590
 Arg Glu Thr Leu Lys Arg His Gly Ile Ala Leu Pro Gln Pro Ser Arg
 595 600 605
 Lys Pro Arg Lys
 610

<210> 45
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
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<223> N= Unknown

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<210> 46
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 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 46
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 20 25 30
 Leu Pro Lys Glu Val Gly Lys Val Leu Arg Lys His Arg Arg Tyr Ser
 35 40 45

Glu Glu Glu Ile Lys Asn Glu Arg Ala Arg Leu Ala Ala Val Gly Glu
 50 55 60

Arg Val Asn Arg Val Phe Thr Leu Leu Gly Gly Glu Thr Ala Leu Gln
 65 70 75 80

Lys Gly Gln Ala Gly Thr Ala Leu Ala Thr Tyr Met Leu Met Leu Glu
 85 90 95

Arg Thr Lys Ser Pro Glu Val Ala Glu Arg Ala Leu Glu Met Ala Val
 100 105 110

Ser Leu Asn Ala Phe Glu Gln Ala Glu Met Ile Tyr Gln Lys Trp Arg
 115 120 125

Gln Ile Glu Pro Ile Pro Gly Glu Ala Gln Lys Pro Ala Gly Trp Leu
 130 135 140

Arg Asn Val Leu Lys Glu Gly Gly Asn Pro His Leu Asp Arg Leu Glu
 145 150 155 160

Glu Val Pro Ala Gln Ser Asp Tyr Val His Gln Pro Met Ile Phe Leu
 165 170 175

Leu Leu Val Gln Ala Ala Val Gln His Gly Gly Val Ala Gln Lys Pro
 180 185 190

Ser Lys Ala Val Arg Pro Ala Ala Tyr Asn Tyr Glu Val Leu Pro Glu
 195 200 205

Thr Ala Gly Ala Asp Ala Val Phe Cys Val Gln Gly Pro Gln Tyr Glu
 210 215 220

Lys Ala Ile Gln Ser Phe Pro Pro Cys Gly Arg Asn Pro Gln Thr Glu
 225 230 235 240

Asn Ile Ala Pro Pro Phe Asn Glu Leu Phe Arg Pro Thr Ala Arg Pro
 245 250 255

Ile Ser Pro Lys Leu Leu Gln Arg Phe Phe Arg Thr Glu Pro Asn Leu
 260 265 270

Ala Lys Pro Phe Arg Pro Pro Gly Pro Glu Met Glu Thr Tyr Gln Thr
 275 280 285

Gly Phe Pro Arg Pro Leu Thr Arg Asn Asn Pro Thr
 290 295 300

<210> 47

<211> 1839

<212> DNA

<213> Neisseria gonorrhoeae

<400> 47

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caggcgggaa	cggctctggc	aacctatatg	ctgatgttgg	aacgcacaaa	atcccccgaa	300
gtcgccgaac	gcgccttgga	aatggccgtg	tcgctgaacg	cgtttgaaca	ggcggaaatg	360
atztatcaga	aatggcggca	gatcgagcct	ataccgggtg	aggcgcaaaa	accggcgggg	420
tggctgcgga	acgtattgaa	ggaaggggga	aatcagcatc	tggacggggt	gaaagaggtg	480
ctggcgcaat	cggacgatgt	gcaaaaacgc	aggatatatt	tgctgctggt	gcaagccgcc	540
gtgcagcagg	gtgggggtgg	tcaaaaagca	tcgaaagcgg	ttcgccgtgc	ggcggttgaag	600
tatgaacatc	tgcccgaagc	ggcggttgcc	gatgcgggtg	tcggcggtaca	gggacgcgaa	660
aagggaaaagg	caatcgaagc	tttgacgctg	ttggcgaagc	tcgatacggg	aatattgccc	720
cccacttttaa	tgacgttgcg	tctgactgca	cgcaaatact	ccgaaatact	cgacggcgtt	780
ttcgagcaga	cagacaccca	aaaccttttcg	gccgtctggc	aggaaatgga	aattatgaat	840
ctggtttccc	tgcgtaagcc	ggatgatgcc	tatgcgcgtt	tgaacgtgct	gttggaaacac	900
aacccgaatg	caaacctgta	tattcaggcg	gcgatattgg	cggcaaaccg	aaaagaaggt	960
gcgtccgtta	tcgacggcta	cgccgaaaag	gcatacggca	gggggacggg	ggaacagcgg	1020
ggcagggcgg	caatgacggc	ggcgatgata	tatgccgacc	gcagggatta	cgccaaagtc	1080
aggcagtggg	tgaaaaaagt	gtccgcgcgg	gaatacctgt	tcgacaaagg	cgtgctggcg	1140
gctgcggcgg	ctgccgaatt	ggacggaggc	cgggcggcgt	tgccggcagat	cggcaggggt	1200
cggaaacttc	ccgaacagca	ggggcggtat	tttacggcag	acaatttgct	caaaatacag	1260
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atcgccaaac	tttcggcggc	gggaagcacg	gaaccttttg	cgggaagcatt	ggcacagcgt	1380
tccattatth	acgaacagtt	cggcaaacgg	ggaaaaatga	ttgccgacct	tgaaccgcgg	1440
ctcaaaactta	cgcccgcata	tgacacaaat	atgaataatc	tgggctacag	cctgctttcc	1500
gattccaaac	gtttggacga	gggtttcgcc	ctgcttcaga	cggcatacca	aatcaaccgc	1560
gacgataccg	ccgttaacga	cagcataggg	tgggcggtatt	acctgaaagg	cgacgcggaa	1620
agcgcgctgc	cgtatctgcg	gtattcggtt	gaaaacgacc	ccgagcccga	agttgccgcc	1680
catttgggcg	aagtgttggt	ggcattgggc	gaacgcgac	aggcggttga	cgtatggacg	1740
caggcggcac	accttagggg	agacaagaaa	atatggcggg	agacgctcaa	acgctacgga	1800
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 <211> 612
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 48

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			20					25					30		
Lys	Glu	Val	Gly	Lys	Val	Leu	Arg	Lys	His	Arg	Arg	Tyr	Ser	Glu	Glu
		35					40					45			
Glu	Ile	Lys	Asn	Glu	Arg	Ala	Arg	Leu	Ala	Ala	Val	Gly	Glu	Arg	Val
	50					55					60				
Asn	Arg	Val	Phe	Thr	Leu	Leu	Gly	Gly	Glu	Thr	Ala	Leu	Gln	Lys	Gly
65					70					75				80	
Gln	Ala	Gly	Thr	Ala	Leu	Ala	Thr	Tyr	Met	Leu	Met	Leu	Glu	Arg	Thr
				85					90					95	

Lys Ser Pro Glu Val Ala Glu Arg Ala Leu Glu Met Ala Val Ser Leu
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 Asn Ala Phe Glu Gln Ala Glu Met Ile Tyr Gln Lys Trp Arg Gln Ile
 115 120 125
 Glu Pro Ile Pro Gly Glu Ala Gln Lys Pro Ala Gly Trp Leu Arg Asn
 130 135 140
 Val Leu Lys Glu Gly Gly Asn Gln His Leu Asp Gly Leu Lys Glu Val
 145 150 155 160
 Leu Ala Gln Ser Asp Asp Val Gln Lys Arg Arg Ile Phe Leu Leu Leu
 165 170 175
 Val Gln Ala Ala Val Gln Gln Gly Gly Val Ala Gln Lys Ala Ser Lys
 180 185 190
 Ala Val Arg Arg Ala Ala Leu Lys Tyr Glu His Leu Pro Glu Ala Ala
 195 200 205
 Val Ala Asp Ala Val Phe Gly Val Gln Gly Arg Glu Lys Glu Lys Ala
 210 215 220
 Ile Glu Ala Leu Gln Arg Leu Ala Lys Leu Asp Thr Glu Ile Leu Pro
 225 230 235 240
 Pro Thr Leu Met Thr Leu Arg Leu Thr Ala Arg Lys Tyr Pro Glu Ile
 245 250 255
 Leu Asp Gly Phe Phe Glu Gln Thr Asp Thr Gln Asn Leu Ser Ala Val
 260 265 270
 Trp Gln Glu Met Glu Ile Met Asn Leu Val Ser Leu Arg Lys Pro Asp
 275 280 285
 Asp Ala Tyr Ala Arg Leu Asn Val Leu Leu Glu His Asn Pro Asn Ala
 290 295 300
 Asn Leu Tyr Ile Gln Ala Ala Ile Leu Ala Ala Asn Arg Lys Glu Gly
 305 310 315 320
 Ala Ser Val Ile Asp Gly Tyr Ala Glu Lys Ala Tyr Gly Arg Gly Thr
 325 330 335
 Gly Glu Gln Arg Gly Arg Ala Ala Met Thr Ala Ala Met Ile Tyr Ala
 340 345 350
 Asp Arg Arg Asp Tyr Ala Lys Val Arg Gln Trp Leu Lys Lys Val Ser
 355 360 365
 Ala Pro Glu Tyr Leu Phe Asp Lys Gly Val Leu Ala Ala Ala Ala Ala
 370 375 380
 Ala Glu Leu Asp Gly Gly Arg Ala Ala Leu Arg Gln Ile Gly Arg Val
 385 390 395 400

Arg Lys Leu Pro Glu Gln Gln Gly Arg Tyr Phe Thr Ala Asp Asn Leu
 405 410 415
 Ser Lys Ile Gln Met Leu Ala Leu Ser Lys Leu Pro Asp Lys Arg Glu
 420 425 430
 Ala Leu Ile Gly Leu Asn Asn Ile Ile Ala Lys Leu Ser Ala Ala Gly
 435 440 445
 Ser Thr Glu Pro Leu Ala Glu Ala Leu Ala Gln Arg Ser Ile Ile Tyr
 450 455 460
 Glu Gln Phe Gly Lys Arg Gly Lys Met Ile Ala Asp Leu Glu Thr Ala
 465 470 475 480
 Leu Lys Leu Thr Pro Asp Asn Ala Gln Ile Met Asn Asn Leu Gly Tyr
 485 490 495
 Ser Leu Leu Ser Asp Ser Lys Arg Leu Asp Glu Gly Phe Ala Leu Leu
 500 505 510
 Gln Thr Ala Tyr Gln Ile Asn Pro Asp Asp Thr Ala Val Asn Asp Ser
 515 520 525
 Ile Gly Trp Ala Tyr Tyr Leu Lys Gly Asp Ala Glu Ser Ala Leu Pro
 530 535 540
 Tyr Leu Arg Tyr Ser Phe Glu Asn Asp Pro Glu Pro Glu Val Ala Ala
 545 550 555 560
 His Leu Gly Glu Val Leu Trp Ala Leu Gly Glu Arg Asp Gln Ala Val
 565 570 575
 Asp Val Trp Thr Gln Ala Ala His Leu Arg Gly Asp Lys Lys Ile Trp
 580 585 590
 Arg Glu Thr Leu Lys Arg Tyr Gly Ile Ala Leu Pro Glu Pro Ser Arg
 595 600 605

Lys Pro Arg Lys
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<210> 49
 <211> 724
 <212> DNA
 <213> Neisseria meningitidis

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 caactgcaca acatcatcgg caactggggc tgggcgatta tcgttttaac catcatcgtc 180
 aaagccgtac tgtatccatt gaccaacgcc tcttaccgct ctatggcgaa aatgcgtgcc 240
 gccgcaccca aactgcaagc catcaaagag aaatacggcg acgaccgtat ggcgcaacaa 300
 caggcgatga tgcagcttta cacagacgag aaaatcaacc cgactgggcg gctgcctgcc 360
 tatgctgttg caaatccccg tcttcatcgg attgtattgg gcattgttcg cctccgtaga 420

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attgcgccag gcaccttggc tgggttggat taccgacctc agccgcgcgcg acccctacta 480
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gaccgaccgc atgcaggcga aaatgatgaa aatcatgcgcg ttggttttct csgwrtggt 600
cttctttctt cctgccggs tggattgta ctgggtagtc aacaacctcc tgaccatgc 660
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<210> 50
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<212> PRT
<213> Neisseria meningitidis

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<223> Xaa= any amino acid

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20          25          30

Ser Pro Leu Phe Trp Leu Leu Asn Gln Leu His Asn Ile Ile Gly Asn
35          40          45

Trp Gly Trp Ala Ile Ile Val Leu Thr Ile Ile Val Lys Ala Val Leu
50          55          60

Tyr Pro Leu Thr Asn Ala Ser Tyr Arg Ser Met Ala Lys Met Arg Ala
65          70          75          80

Ala Ala Pro Lys Leu Gln Ala Ile Lys Glu Lys Tyr Gly Asp Asp Arg
85          90          95

Met Ala Gln Gln Gln Ala Met Met Gln Leu Tyr Thr Asp Glu Lys Ile
100         105         110

Asn Pro Leu Gly Gly Cys Leu Pro Met Leu Leu Gln Ile Pro Val Phe
115         120         125

Ile Gly Leu Tyr Trp Ala Leu Phe Ala Ser Val Glu Leu Arg Gln Ala
130         135         140

Pro Trp Leu Gly Trp Ile Thr Asp Leu Ser Arg Ala Asp Pro Tyr Tyr
145         150         155         160

Ile Leu Pro Ile Ile Met Ala Ala Thr Met Phe Ala Gln Thr Tyr Leu
165         170         175

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Asn Pro Pro Pro Thr Asp Pro Met Gln Ala Lys Met Met Lys Ile Met
180 185 190

Pro Leu Val Phe Ser Xaa Xaa Phe Phe Phe Phe Pro Ala Gly Xaa Val
195 200 205

Leu Tyr Trp Val Val Asn Asn Leu Leu Thr Ile Ala Gln Gln Trp His
210 215 220

Ile Asn Arg Ser Ile Glu Lys Gln Arg Ala Gln Gly Glu Val Val Ser
225 230 235 240

<210> 51
<211> 1638
<212> DNA
<213> Neisseria meningitidis

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gccgtaaccg cttccgcccga agccgcgctc gcgcccgcga cgccgattac cgtaacgacc 180
gacacgggttc aagccgtcat tgatgaaaaa agcggcgacc tgcgcgggct gaccctgctc 240
aaatacaaaag caaccggcga cgaaaataaa ccgttcaccc tgtttggcga cggcaaagaa 300
tacacctacg tcgcccacac cgaacttttg gacgcgcagg gcaacaacat tctaaaaggc 360
atcggtctta gcgcaccgaa aaaacagtac agcttggaag gcgacaaagt tgaagtcgcg 420
ctgagcgcgc ctgaaacacg cggctctgaaa atcgacaaag tttatacttt caccaaaggc 480
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cactcttacg tcggccctgt tgtttatacc cctgaaggca acttccaaaa agtcagcttt 660
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ccgaccggct ggctcggcat gattgaacac cacttcatgt ccacctggat tctccaacct 780
aaaggcagac aaagcgtttg cgccgcaggc gaggtgcaaca tcgacatcaa acgccgcaac 840
gacaagctgt acagcaccag cgtcagcgtg cctttagccg ccatacaaaa cggcgcgaaa 900
gccgaagcct ccatacaact ctacgcgggc ccgcagacca catccgtcat cgcaaacatc 960
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ttaaccatga tcgtcaaagc cgtactgtat ccattgacca acgcctctta ccgctctatg 1140
gcgaaaatgc gtgccgcgc acccaaactg caagccatca aagagaaata cggcgacgac 1200
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ttcgctccg tagaattgcg ccaggcacct tggctggggt ggattaccga cctcagccgc 1380

gccgaccct actacatcct gccatcatt atggcggcaa cgatgttcgc ccaaacttat 1440
ctgaacccgc cgccgaccga cccgatgcag gcgaaaatga tgaaaatcat gccgttggtt 1500
ttctccgtca tggtcttctt cttccctgcc ggtctggtat tgtactgggt agtcaacaac 1560
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ggcgaagtcg tttcctaa 1638

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<211> 545
<212> PRT
<213> Neisseria meningitidis

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 35 40 45
 Ala Leu Ala Pro Ala Thr Pro Ile Thr Val Thr Thr Asp Thr Val Gln
 50 55 60
 Ala Val Ile Asp Glu Lys Ser Gly Asp Leu Arg Arg Leu Thr Leu Leu
 65 70 75 80
 Lys Tyr Lys Ala Thr Gly Asp Glu Asn Lys Pro Phe Ile Leu Phe Gly
 85 90 95
 Asp Gly Lys Glu Tyr Thr Tyr Val Ala Gln Ser Glu Leu Leu Asp Ala
 100 105 110
 Gln Gly Asn Asn Ile Leu Lys Gly Ile Gly Phe Ser Ala Pro Lys Lys
 115 120 125
 Gln Tyr Ser Leu Glu Gly Asp Lys Val Glu Val Arg Leu Ser Ala Pro
 130 135 140
 Glu Thr Arg Gly Leu Lys Ile Asp Lys Val Tyr Thr Phe Thr Lys Gly
 145 150 155 160
 Ser Tyr Leu Val Asn Val Arg Phe Asp Ile Ala Asn Gly Ser Gly Gln
 165 170 175
 Thr Ala Asn Leu Ser Ala Asp Tyr Arg Ile Val Arg Asp His Ser Glu
 180 185 190
 Pro Glu Gly Gln Gly Tyr Phe Thr His Ser Tyr Val Gly Pro Val Val
 195 200 205
 Tyr Thr Pro Glu Gly Asn Phe Gln Lys Val Ser Phe Ser Asp Leu Asp
 210 215 220
 Asp Asp Ala Lys Ser Gly Lys Ser Glu Ala Glu Tyr Ile Arg Lys Thr
 225 230 235 240
 Pro Thr Gly Trp Leu Gly Met Ile Glu His His Phe Met Ser Thr Trp
 245 250 255
 Ile Leu Gln Pro Lys Gly Arg Gln Ser Val Cys Ala Ala Gly Glu Cys
 260 265 270
 Asn Ile Asp Ile Lys Arg Arg Asn Asp Lys Leu Tyr Ser Thr Ser Val
 275 280 285
 Ser Val Pro Leu Ala Ala Ile Gln Asn Gly Ala Lys Ala Glu Ala Ser
 290 295 300
 Ile Asn Leu Tyr Ala Gly Pro Gln Thr Thr Ser Val Ile Ala Asn Ile

305		310		315		320
Ala Asp Asn Leu Gln Leu Ala Lys Asp Tyr Gly Lys Val His Trp Phe						
	325			330		335
Ala Ser Pro Leu Phe Trp Leu Leu Asn Gln Leu His Asn Ile Ile Gly						
	340			345		350
Asn Trp Gly Trp Ala Ile Ile Val Leu Thr Ile Ile Val Lys Ala Val						
	355			360		365
Leu Tyr Pro Leu Thr Asn Ala Ser Tyr Arg Ser Met Ala Lys Met Arg						
	370			375		380
Ala Ala Ala Pro Lys Leu Gln Ala Ile Lys Glu Lys Tyr Gly Asp Asp						
	385			390		395
Arg Met Ala Gln Gln Gln Ala Met Met Gln Leu Tyr Thr Asp Glu Lys						
	405			410		415
Ile Asn Pro Leu Gly Gly Cys Leu Pro Met Leu Leu Gln Ile Pro Val						
	420			425		430
Phe Ile Gly Leu Tyr Trp Ala Leu Phe Ala Ser Val Glu Leu Arg Gln						
	435			440		445
Ala Pro Trp Leu Gly Trp Ile Thr Asp Leu Ser Arg Ala Asp Pro Tyr						
	450			455		460
Tyr Ile Leu Pro Ile Ile Met Ala Ala Thr Met Phe Ala Gln Thr Tyr						
	465			470		475
Leu Asn Pro Pro Pro Thr Asp Pro Met Gln Ala Lys Met Met Lys Ile						
	485			490		495
Met Pro Leu Val Phe Ser Val Met Phe Phe Phe Phe Pro Ala Gly Leu						
	500			505		510
Val Leu Tyr Trp Val Val Asn Asn Leu Leu Thr Ile Ala Gln Gln Trp						
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Ser
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 <223> N= Unknown

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 gccgtaancg cttccgcccga agccgcgctc gcgcccgnan cgccgattac cgtaacgacc 180
 gacacggttc aagccgtcat tgatgaaaaa agcggcgacc tgcgcccggct gaccctgctc 240
 aaatacaaaag caaccggcga cnaaaataaa ccgttcatcc tgtttggcga cggcaanaaa 300
 tacacctacn tcgcccantc cgaacttttg gacgcgcagg gcaacaacat tctaaaaggc 360
 atcggcttta ggcgaccgaa aaaacagtac agcttggaag gcgacaaagt tgaagtccgc 420
 ctgagcgcac ctgaaacacg cggctctgaaa atcgacaaag tttatacttt caccaaaggc 480
 agctatctgg tcaacgtccg cttcgacatc gccaacggca gcggtcaaac cgccaacctg 540
 agcgcggact accgcacgtc ccgcgaccac agcgaacccg aggggtcaagg ctactttacc 600
 cactcttacg tcggccctgt tgtttataacc cctgaaggca acttccaaaa agtcagcttc 660
 tccgacttgg acgacgatgc caantccggn aaatccgagg ccgaatacat ccgcaaaacc 720
 cngaccggct ggctcggcat gattgaacac cacttcatgt ccacctggat cctccaaccc 780
 aaaggcggac aaagcgtttg cgccgctggc gactgcngta tngacatcaa acgccgcaac 840
 gacaagctgt acagcaccag cgtcagcgtg ccttttagccg ctatccaaaa cgggtgcgaaa 900
 tccnaagcct ccatcaacct ctacgccggc ccacagacca catcngttat cgcaaaccatc 960
 gccgacaacc tgcaactggn caaagactac ggcaaagtac actggttcgc ctccccctc 1020
 ttttggtttt tgaaccaact gcacaacatc atcggaact ggggctgggc gattatcggt 1080
 ttaaccatca tcgtcaaagc cgtactgtat ccattgacca acgcctctta ccgttcgatg 1140
 gcgaaaatgc gtgccgcccgc gcccaaaactg caagccatca aagagaaaata cggcgacgac 1200
 cgtatggcgc agcaacaagc catgatgcag ctttacacag acgagaaaat caaccgcgtg 1260
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 ttgcctccg tagaattgcg ccaggcacct tggctgggtt ggattaccga cctcagccgc 1380
 gccgaccnt actacatcct gcccatcatt atggcgccaa cgatgttcgc ccaaacctat 1440
 ctgaacccgc cgccgaccga cccgatgcag gcgaaaatga tgaaaatcat gcctttgggt 1500
 ntntcnnnna ngttcttcnn cttccctgcc ggtctggtat tgtactgggt gatcaacaac 1560
 ctctgacca tcgcccagca atggcacatc aaccgcagca tcgaaaaaca acgcgcccaa 1620
 ggcgaagtgc tttcctaa 1638

<210> 54

<211> 545
 <212> PRT
 <213> Neisseria meningitidis

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 <223> Xaa= any amino acid

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<222> (8)..(8)
<223> Xaa= any amino acid

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<223> Xaa= any amino acid

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<223> Xaa= any amino acid

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<223> Xaa= any amino acid

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 <223> Xaa= any amino acid

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 <222> (507)..(507)
 <223> Xaa= any amino acid

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 Pro Gln Gln Thr Ala Gln Gln Gln Ala Val Xaa Ala Ser Ala Glu Ala
 35 40 45
 Ala Leu Ala Pro Xaa Xaa Pro Ile Thr Val Thr Thr Asp Thr Val Gln
 50 55 60
 Ala Val Ile Asp Glu Lys Ser Gly Asp Leu Arg Arg Leu Thr Leu Leu
 65 70 75 80
 Lys Tyr Lys Ala Thr Gly Asp Xaa Asn Lys Pro Phe Ile Leu Phe Gly
 85 90 95
 Asp Gly Lys Xaa Tyr Thr Tyr Xaa Ala Xaa Ser Glu Leu Leu Asp Ala
 100 105 110
 Gln Gly Asn Asn Ile Leu Lys Gly Ile Gly Phe Ser Ala Pro Lys Lys
 115 120 125
 Gln Tyr Ser Leu Glu Gly Asp Lys Val Glu Val Arg Leu Ser Ala Pro
 130 135 140
 Glu Thr Arg Gly Leu Lys Ile Asp Lys Val Tyr Thr Phe Thr Lys Gly
 145 150 155 160

Ser Tyr Leu Val Asn Val Arg Phe Asp Ile Ala Asn Gly Ser Gly Gln
 165 170 175
 Thr Ala Asn Leu Ser Ala Asp Tyr Arg Ile Val Arg Asp His Ser Glu
 180 185 190
 Pro Glu Gly Gln Gly Tyr Phe Thr His Ser Tyr Val Gly Pro Val Val
 195 200 205
 Tyr Thr Pro Glu Gly Asn Phe Gln Lys Val Ser Phe Ser Asp Leu Asp
 210 215 220
 Asp Asp Ala Xaa Ser Gly Lys Ser Glu Ala Glu Tyr Ile Arg Lys Thr
 225 230 235 240
 Xaa Thr Gly Trp Leu Gly Met Ile Glu His His Phe Met Ser Thr Trp
 245 250 255
 Ile Leu Gln Pro Lys Gly Gly Gln Ser Val Cys Ala Ala Gly Asp Cys
 260 265 270
 Xaa Xaa Asp Ile Lys Arg Arg Asn Asp Lys Leu Tyr Ser Thr Ser Val
 275 280 285
 Ser Val Pro Leu Ala Ala Ile Gln Asn Gly Ala Lys Ser Xaa Ala Ser
 290 295 300
 Ile Asn Leu Tyr Ala Gly Pro Gln Thr Thr Ser Val Ile Ala Asn Ile
 305 310 315 320
 Ala Asp Asn Leu Gln Leu Xaa Lys Asp Tyr Gly Lys Val His Trp Phe
 325 330 335
 Ala Ser Pro Leu Phe Trp Leu Leu Asn Gln Leu His Asn Ile Ile Gly
 340 345 350
 Asn Trp Gly Trp Ala Ile Ile Val Leu Thr Ile Ile Val Lys Ala Val
 355 360 365
 Leu Tyr Pro Leu Thr Asn Ala Ser Tyr Arg Ser Met Ala Lys Met Arg
 370 375 380
 Ala Ala Ala Pro Lys Leu Gln Ala Ile Lys Glu Lys Tyr Gly Asp Asp
 385 390 395 400
 Arg Met Ala Gln Gln Gln Ala Met Met Gln Leu Tyr Thr Asp Glu Lys
 405 410 415
 Ile Asn Pro Leu Gly Gly Cys Leu Pro Met Leu Leu Gln Ile Pro Val
 420 425 430
 Phe Ile Gly Leu Tyr Trp Ala Leu Phe Ala Ser Val Glu Leu Arg Gln
 435 440 445

Ala Pro Trp Leu Gly Trp Ile Thr Asp Leu Ser Arg Ala Asp Pro Tyr
450 455 460

Tyr Ile Leu Pro Ile Ile Met Ala Ala Thr Met Phe Ala Gln Thr Tyr
465 470 475 480

Leu Asn Pro Pro Pro Thr Asp Pro Met Gln Ala Lys Met Met Lys Ile
485 490 495

Met Pro Leu Val Xaa Ser Xaa Xaa Phe Phe Xaa Phe Pro Ala Gly Leu
500 505 510

Val Leu Tyr Trp Val Ile Asn Asn Leu Leu Thr Ile Ala Gln Gln Trp
515 520 525

His Ile Asn Arg Ser Ile Glu Lys Gln Arg Ala Gln Gly Glu Val Val
530 535 540

Ser
545

<210> 55
<211> 8
<212> DNA
<213> Neisseria gonorrhoeae

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<223> N= Unknown

<400> 55
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<210> 56
<211> 243
<212> PRT
<213> Neisseria gonorrhoeae

<400> 56
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1 5 10 15

Asn Ile Ala Asp Asn Leu Gln Leu Ala Lys Asp Tyr Gly Lys Val His
20 25 30

Trp Phe Ala Ser Pro Leu Phe Trp Leu Leu Asn Gln Leu His Asn Ile
35 40 45

Ile Gly Asn Trp Gly Trp Ala Ile Val Val Leu Thr Ile Ile Val Lys

50

55

60

Ala Val Leu Tyr Pro Leu Thr Asn Ala Ser Tyr Arg Ser Met Ala Lys
65 70 75 80

Met Arg Ala Ala Ala Pro Glu Leu Gln Thr Ile Lys Glu Lys Tyr Gly
85 90 95

Asp Asp Arg Met Ala Gln Gln Gln Ala Met Met Gln Leu Phe Glu Asp
100 105 110

Glu Glu Ile Asn Pro Leu Gly Gly Cys Leu Pro Met Leu Leu Gln Ile
115 120 125

Pro Val Phe Ile Gly Leu Tyr Trp Ala Leu Phe Ala Ser Val Glu Leu
130 135 140

Arg Gln Ala Pro Trp Leu Gly Trp Ile Thr Asp Leu Ser Arg Ala Asp
145 150 155 160

Pro Tyr Tyr Ile Leu Pro Ile Ile Met Ala Ala Thr Met Phe Ala Gln
165 170 175

Thr Tyr Leu Asn Pro Pro Pro Thr Asp Pro Met Gln Ala Lys Met Met
180 185 190

Lys Ile Met Pro Leu Val Phe Ser Val Met Phe Phe Phe Phe Pro Ala
195 200 205

Gly Leu Val Leu Tyr Trp Val Val Asn Asn Leu Leu Thr Ile Ala Gln
210 215 220

Gln Trp His Ile Asn Arg Ser Ile Glu Lys Gln Arg Ala Gln Gly Glu
225 230 235 240

Val Val Ser

<210> 57
<211> 1641
<212> DNA
<213> Neisseria gonorrhoeae

<400> 57
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gaaaaaatgt tccccacccc gaaacccgtc cccgcgcccc aacaggcggc acaaaaacag 120
gcagcaaccg cttccgcca agccgcgctc gcgcccgaac cgccgattac cgtaacgacc 180
gacacggttc aagccgttat tgatgaaaaa agtggcgacc tgcgcgggct gaccctgctc 240
aaatacaaag caaccggcga cgaaaacaaa ccgttcgtcc tgtttggcga cggcaaagaa 300
tacacctacg tcgcccacac cgaacttttg gacgcgcagg gcaacaacat tctgaaaggc 360
atcggcttta gcgcaccgaa aaaacagta accctcaacg gcgacacagt cgaagtccgc 420
ctgagcgcgc ccgaaaccaa cggactgaaa atcgacaaag tctatacctt taccaaagac 480
agctatctgg tcaacgtccg cttcgacatc gccaacggca gcggtcaaac cgccaacctg 540
agcgcggact accgcatcgt ccgcgaccac agcgaacccg aggggtcaagg ctactttacc 600
cactcttacg tcggccctgt tgtttataacc cctgaaggca acttccaaaa agtcagcttc 660
tccgacttgg acgacgatgc gaaatccggc aaatccgagg ccgaatacat ccgcaaaacc 720

ccgaccgggtt ggctcggcat gattgaacac cacttcatgt ccacctggat cctccaacct 780
aaaggcggcc aaaacgtttg cgcccaggga gactgccgta tcgacattaa acgcccgaac 840
gacaagctgt acagcgcaag cgtcagcgtg cctttaaccg ctatcccaac ccgggggcca 900
aaaccgaaaa tggcgggtcaa cctgtatgcc ggtccgcaaa ccacatccgt tatcgcaaac 960

atcgccgaca acctgcaact ggcaaaagac tacggtaaag tacactgggtt cgcacgcgcg 1020
 ctcttctggc tcctgaacca actgcacaac attatcggca actggggctg ggcaatcgtc 1080
 gttttgacca tcacgtcaa agccgtactg tatccattga ccaacgcctc ctaccgttcg 1140
 atggcgaaaa tgcgtgccgc cgcacccaaa ctgcagacca tcaaagaaaa atacggcgac 1200
 gaccgtatgg cgcaacagca agcgatgatg cagctttaca aagacgagaa aatcaaccgc 1260
 ctgggcggct gtctgcctat gctgttgcaa atccccgtct tcacgggctt gtactgggca 1320
 ttgttcgcct ccgtagaatt gcgccaggca ccttggtggtg gctggattac cgacctcagc 1380
 cgcgccgacc cctactacat cctgcccatac attatggcgg caacgatgtt cgcccaaacc 1440
 tatctgaacc cgccgccgac cgaccgatg caggcgaaaa tgatgaaaat catgccgttg 1500
 gttttctcgc tcattgttctt cttcttcctt gccgggttggt ttctctactg ggtgggtcaac 1560
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 caaggcgaag tcgtttccta a 1641

<210> 58
 <211> 546
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 58
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 Met Ile Gly Trp Glu Lys Met Phe Pro Thr Pro Lys Pro Val Pro Ala
 20 25 30
 Pro Gln Gln Ala Ala Gln Lys Gln Ala Ala Thr Ala Ser Ala Glu Ala
 35 40 45
 Ala Leu Ala Pro Ala Thr Pro Ile Thr Val Thr Thr Asp Thr Val Gln
 50 55 60
 Ala Val Ile Asp Glu Lys Ser Gly Asp Leu Arg Arg Leu Thr Leu Leu
 65 70 75 80
 Lys Tyr Lys Ala Thr Gly Asp Glu Asn Lys Pro Phe Val Leu Phe Gly
 85 90 95
 Asp Gly Lys Glu Tyr Thr Tyr Val Ala Gln Ser Glu Leu Leu Asp Ala
 100 105 110
 Gln Gly Asn Asn Ile Leu Lys Gly Ile Gly Phe Ser Ala Pro Lys Lys
 115 120 125
 Gln Tyr Thr Leu Asn Gly Asp Thr Val Glu Val Arg Leu Ser Ala Pro
 130 135 140
 Glu Thr Asn Gly Leu Lys Ile Asp Lys Val Tyr Thr Phe Thr Lys Asp
 145 150 155 160
 Ser Tyr Leu Val Asn Val Arg Phe Asp Ile Ala Asn Gly Ser Gly Gln
 165 170 175
 Thr Ala Asn Leu Ser Ala Asp Tyr Arg Ile Val Arg Asp His Ser Glu
 180 185 190

Pro Glu Gly Gln Gly Tyr Phe Thr His Ser Tyr Val Gly Pro Val Val
 195 200 205
 Tyr Thr Pro Glu Gly Asn Phe Gln Lys Val Ser Phe Ser Asp Leu Asp
 210 215 220
 Asp Asp Ala Lys Ser Gly Lys Ser Glu Ala Glu Tyr Ile Arg Lys Thr
 225 230 235 240
 Pro Thr Gly Trp Leu Gly Met Ile Glu His His Phe Met Ser Thr Trp
 245 250 255
 Ile Leu Gln Pro Lys Gly Gly Gln Asn Val Cys Ala Gln Gly Asp Cys
 260 265 270
 Arg Ile Asp Ile Lys Arg Arg Asn Asp Lys Leu Tyr Ser Ala Ser Val
 275 280 285
 Ser Val Pro Leu Thr Ala Ile Pro Thr Arg Gly Pro Lys Pro Lys Met
 290 295 300
 Ala Val Asn Leu Tyr Ala Gly Pro Gln Thr Thr Ser Val Ile Ala Asn
 305 310 315 320
 Ile Ala Asp Asn Leu Gln Leu Ala Lys Asp Tyr Gly Lys Val His Trp
 325 330 335
 Phe Ala Ser Pro Leu Phe Trp Leu Leu Asn Gln Leu His Asn Ile Ile
 340 345 350
 Gly Asn Trp Gly Trp Ala Ile Val Val Leu Thr Ile Ile Val Lys Ala
 355 360 365
 Val Leu Tyr Pro Leu Thr Asn Ala Ser Tyr Arg Ser Met Ala Lys Met
 370 375 380
 Arg Ala Ala Ala Pro Lys Leu Gln Thr Ile Lys Glu Lys Tyr Gly Asp
 385 390 395 400
 Asp Arg Met Ala Gln Gln Gln Ala Met Met Gln Leu Tyr Lys Asp Glu
 405 410 415
 Lys Ile Asn Pro Leu Gly Gly Cys Leu Pro Met Leu Leu Gln Ile Pro
 420 425 430
 Val Phe Ile Gly Leu Tyr Trp Ala Leu Phe Ala Ser Val Glu Leu Arg
 435 440 445
 Gln Ala Pro Trp Leu Gly Trp Ile Thr Asp Leu Ser Arg Ala Asp Pro
 450 455 460
 Tyr Tyr Ile Leu Pro Ile Ile Met Ala Ala Thr Met Phe Ala Gln Thr
 465 470 475 480
 Tyr Leu Asn Pro Pro Pro Thr Asp Pro Met Gln Ala Lys Met Met Lys
 485 490 495

Ile Met Pro Leu Val Phe Ser Val Met Phe Phe Phe Phe Pro Ala Gly
500 505 510

Leu Val Leu Tyr Trp Val Val Asn Asn Leu Leu Thr Ile Ala Gln Gln
515 520 525

Trp His Ile Asn Arg Ser Ile Glu Lys Gln Arg Ala Gln Gly Glu Val
530 535 540

Val Ser
545

<210> 59
<211> 379
<212> DNA
<213> Neisseria meningitidis

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<222> (51)..(51)
<223> N= Unknown

<220>
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<222> (122)..(122)
<223> N= Unknown

<220>
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<222> (149)..(149)
<223> N= Unknown

<220>
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<222> (237)..(237)
<223> N= Unknown

<400> 59
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gncgctctgc tttccgcgct gggtatttng ttcgtacacg ccaaaaccgc cgttagaaaa 180
gttgaaacgg attcatatca ggatttggat gccggacaat atgtcgaaat cctccgncac 240
acaggcggca accgttacga agtttttata gcggtacgac tggcaggctc aaaatacggg 300
gcaagaagag cttgaaccag gaactcgcgc cctcattgtc cgcaaggaag gcaaccttct 360
tattatcaca cacccttaa 379

<210> 60
<211> 126
<212> PRT
<213> Neisseria meningitidis

<220>
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<222> (41)..(41)

<223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (50)..(50)

<223> Xaa= any amino acid

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<222> (89)..(89)

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<221> misc_feature

<222> (94)..(94)

<223> Xaa= any amino acid

<400> 60

Ala Val Leu Ile Ile Glu Leu Leu Thr Gly Thr Val Tyr Leu Leu Val
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Val Ser Ala Ala Leu Ala Gly Ser Gly Ile Ala Tyr Gly Leu Thr Gly
20 25 30

Ser Thr Pro Ala Ala Val Leu Thr Xaa Ala Leu Leu Ser Ala Leu Gly
35 40 45

Ile Xaa Phe Val His Ala Lys Thr Ala Val Arg Lys Val Glu Thr Asp
50 55 60

Ser Tyr Gln Asp Leu Asp Ala Gly Gln Tyr Val Glu Ile Leu Arg His
65 70 75 80

Thr Gly Gly Asn Arg Tyr Glu Val Xaa Tyr Arg Gly Thr Xaa Trp Gln
85 90 95

Ala Gln Asn Thr Gly Gln Glu Glu Leu Glu Pro Gly Thr Arg Ala Leu
100 105 110

Ile Val Arg Lys Glu Gly Asn Leu Leu Ile Ile Thr His Pro
115 120 125

<210> 61

<211> 381

<212> DNA

<213> Neisseria meningitidis

<220>

<221> misc_feature

<222> (51)..(51)

<223> N= Unknown

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<222> (122)..(122)

<223> N= Unknown

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<221> misc_feature

<222> (149)..(149)

<223> N= Unknown

<400> 61

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gncgctctgc	tttcgcgcgt	gggtatttng	ttcgtacacg	ccaaaaccgc	cgtagaaaa	180
ggtgaaacgg	attcatatca	ggatttggat	gccggacaat	atgtcgaaat	cctccgacac	240
acaggcggca	accgttacga	agttttttat	cgcggtacgc	actggcaggc	tcaaaatagc	300
gggcaagaag	agcttgaacc	aggaactcgc	gccctcattg	tccgcaagga	aggcaacctt	360
cttattatca	cacaccctta	a				381

<210> 62

<211> 126

<212> PRT

<213> Neisseria meningitidis

<220>

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<222> (41)..(41)

<223> Xaa= any amino acid

<220>

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<222> (50)..(50)

<223> Xaa= any amino acid

<400> 62

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Val	Ser	Ala	Ala	Leu	Ala	Gly	Ser	Gly	Ile	Ala	Tyr	Gly	Leu	Thr	Gly
				20				25					30		
Ser	Thr	Pro	Ala	Ala	Val	Leu	Thr	Xaa	Ala	Leu	Leu	Ser	Ala	Leu	Gly
				35				40					45		
Ile	Xaa	Phe	Val	His	Ala	Lys	Thr	Ala	Val	Arg	Lys	Val	Glu	Thr	Asp
				50				55					60		
Ser	Tyr	Gln	Asp	Leu	Asp	Ala	Gly	Gln	Tyr	Val	Glu	Ile	Leu	Arg	His
				65				70					75		80
Thr	Gly	Gly	Asn	Arg	Tyr	Glu	Val	Phe	Tyr	Arg	Gly	Thr	His	Trp	Gln
				85				90						95	
Ala	Gln	Asn	Thr	Gly	Gln	Glu	Glu	Leu	Glu	Pro	Gly	Thr	Arg	Ala	Leu
				100				105						110	
Ile	Val	Arg	Lys	Glu	Gly	Asn	Leu	Leu	Ile	Ile	Thr	His	Pro		
				115				120					125		

<210> 63
 <211> 408
 <212> DNA
 <213> Neisseria meningitidis

<400> 63
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 ggcagcacgc ctgccgccgt cttgaccgcc gctctgcttt ccgcgctggg tatttggttc 180
 gtacacgcca aaaccgccgt gggaaaagtt gaaacggatt catatcagga tttggatgcc 240
 gggcaatatg ccgaaatcct ccggcacgca ggcggcaacc gttacgaagt tttttatcgc 300
 ggtacgcact ggcaggctca aaatacgggg caagaagagc ttgaaccagg aacgcgcgcc 360
 ctaatcgtcc gcaaggaagg caaccttctt atcatcgcaa aaccttaa 408

<210> 64
 <211> 135
 <212> PRT
 <213> Neisseria meningitidis

<400> 64
 Met Thr Val Trp Phe Val Ala Ala Val Ala Val Leu Ile Ile Glu Leu
 1 5 10 15
 Leu Thr Gly Thr Val Tyr Leu Leu Val Val Ser Ala Ala Leu Ala Gly
 20 25 30
 Ser Gly Ile Ala Tyr Gly Leu Thr Gly Ser Thr Pro Ala Ala Val Leu
 35 40 45
 Thr Ala Ala Leu Leu Ser Ala Leu Gly Ile Trp Phe Val His Ala Lys
 50 55 60
 Thr Ala Val Gly Lys Val Glu Thr Asp Ser Tyr Gln Asp Leu Asp Ala
 65 70 75 80
 Gly Gln Tyr Ala Glu Ile Leu Arg His Ala Gly Gly Asn Arg Tyr Glu
 85 90 95
 Val Phe Tyr Arg Gly Thr His Trp Gln Ala Gln Asn Thr Gly Gln Glu
 100 105 110
 Glu Leu Glu Pro Gly Thr Arg Ala Leu Ile Val Arg Lys Glu Gly Asn
 115 120 125
 Leu Leu Ile Ile Ala Lys Pro
 130 135

<210> 65
 <211> 408
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 65
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 gtttatcttt tgggtgtcag cgcggctttg gcgggttcgg gcattgccta cgggctgact 120
 ggcagcacgc ctgccgccgt cttgaccgcc gcaactgcttt ccgcgctggg catttggttc 180

gtacatgccaa aaaccgccgt gggaaaagtt gaaacggatt catatcagga tttggataacc 240
ggaaaatatg ccgaaatcct ccgatacaca ggccggcaacc gttacgaagt tttttatcgc 300
ggtacgcact ggcaggcgca aaatacgggg caggaagtgt ttgaaccggg aacgcgcgcc 360
ctcatcgctcc gcaaagaagg taaccttctt atcatcgcaa acccttaa 408

<210> 66
<211> 135
<212> PRT
<213> *Neisseria gonorrhoeae*

<400> 66
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20 25 30
Ser Gly Ile Ala Tyr Gly Leu Thr Gly Ser Thr Pro Ala Ala Val Leu
35 40 45
Thr Ala Ala Leu Leu Ser Ala Leu Gly Ile Trp Phe Val His Ala Lys
50 55 60
Thr Ala Val Gly Lys Val Glu Thr Asp Ser Tyr Gln Asp Leu Asp Thr
65 70 75 80
Gly Lys Tyr Ala Glu Ile Leu Arg Tyr Thr Gly Gly Asn Arg Tyr Glu
85 90 95
Val Phe Tyr Arg Gly Thr His Trp Gln Ala Gln Asn Thr Gly Gln Glu
100 105 110
Val Phe Glu Pro Gly Thr Arg Ala Leu Ile Val Arg Lys Glu Gly Asn
115 120 125
Leu Leu Ile Ile Ala Asn Pro
130 135

<210> 67
<211> 407
<212> DNA
<213> *Neisseria meningitidis*

<400> 67
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cgctttgtcg gcagcgctcaa acaggaattt gacactcaaa tcgaactgga agaactgagg 180
aaggcaaagc aggaatttga agctgccgcc gctcaggttc gagacagcct caaagaaacc 240
ggtacggata tggaaggcaa tctgcacgac atttccgacg gtctgaagcc ttgggaaaaa 300
ctgccccgaac agcggacacc tgccgatttc ggtgtcgatg aaaacggcaa tccgcttccc 360
gatgcggcaa acaccctatc agacggcatt tccgacgtta tgccgctc 407

<210> 68
<211> 136
<212> PRT

<213> Neisseria meningitidis

<220>

<221> misc_feature

<222> (2)..(2)

<223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (25)..(25)

<223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (31)..(31)

<223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (119)..(119)

<223> Xaa= any amino acid

<400> 68

Met Xaa Asp Phe Gly Leu Gly Glu Leu Val Phe Val Gly Ile Ile Ala
1 5 10 15

Leu Ile Val Leu Gly Pro Glu Arg Xaa Pro Glu Ala Ala Arg Xaa Ala
20 25 30

Gly Arg Leu Ile Gly Arg Leu Gln Arg Phe Val Gly Ser Val Lys Gln
35 40 45

Glu Phe Asp Thr Gln Ile Glu Leu Glu Glu Leu Arg Lys Ala Lys Gln
50 55 60

Glu Phe Glu Ala Ala Ala Ala Gln Val Arg Asp Ser Leu Lys Glu Thr
65 70 75 80

Gly Thr Asp Met Glu Gly Asn Leu His Asp Ile Ser Asp Gly Leu Lys
85 90 95

Pro Trp Glu Lys Leu Pro Glu Gln Arg Thr Pro Ala Asp Phe Gly Val
100 105 110

Asp Glu Asn Gly Asn Pro Xaa Ser Arg Cys Gly Lys His Pro Ile Arg
115 120 125

Arg His Phe Arg Arg Tyr Ala Val
130 135

<210> 69

<211> 687

<212> DNA

<213> Neisseria meningitidis

<400> 69

atgtttgatt	tcggtttggg	cgagctgggt	tttgtcggca	ttatcgccct	gattgtcctc	60
ggccccgaac	gcctgcccga	ggccgcccgc	accgcccggac	ggctcatcgg	caggctgcaa	120

cgctttgtcg	gcagcgtaaa	acaggaatth	gacactcaaa	tgaactgga	agaactgagg	180
aaggcaaagc	aggaatttga	agctgccgcc	gctcaggttc	gagacagcct	caaagaaacc	240
ggtacggata	tggaaggcaa	tctgcacgac	atttccgacg	gtctgaagcc	ttgggaaaaa	300
ctgcccgaac	agcggacacc	tgccgatttc	ggtgtcgaat	aaaacggcaa	tccgcttccc	360
gatgcggcaa	acaccctatc	agacggcatt	tccgacgtta	tgccgtccga	acgttcctac	420
gcttccgccc	aaacccttgg	ggacagcggg	caaaccggca	gtacagccga	acccgcggaa	480
accgaccaag	accgcgcgat	gcgggaatac	ctgactgctt	ctgccgccgc	acccgtcgta	540
cagaccgtcg	aagtcagcta	tatcgatact	gctgttgaaa	cgctgtttcc	gcacaccact	600
tccctgcgca	aacaggcaat	aagccgcaaa	cgcgattttc	gtccgaaaca	ccgcgcaaaa	660
cctaaattgc	gcgtccgtaa	atcataa				687

<210> 70
 <211> 228
 <212> PRT
 <213> Neisseria meningitidis

<400> 70
 Met Phe Asp Phe Gly Leu Gly Glu Leu Val Phe Val Gly Ile Ile Ala
 1 5 10 15
 Leu Ile Val Leu Gly Pro Glu Arg Leu Pro Glu Ala Ala Arg Thr Ala
 20 25 30
 Gly Arg Leu Ile Gly Arg Leu Gln Arg Phe Val Gly Ser Val Lys Gln
 35 40 45
 Glu Phe Asp Thr Gln Ile Glu Leu Glu Glu Leu Arg Lys Ala Lys Gln
 50 55 60
 Glu Phe Glu Ala Ala Ala Ala Gln Val Arg Asp Ser Leu Lys Glu Thr
 65 70 75 80
 Gly Thr Asp Met Glu Gly Asn Leu His Asp Ile Ser Asp Gly Leu Lys
 85 90 95
 Pro Trp Glu Lys Leu Pro Glu Gln Arg Thr Pro Ala Asp Phe Gly Val
 100 105 110
 Asp Glu Asn Gly Asn Pro Leu Pro Asp Ala Ala Asn Thr Leu Ser Asp
 115 120 125
 Gly Ile Ser Asp Val Met Pro Ser Glu Arg Ser Tyr Ala Ser Ala Glu
 130 135 140
 Thr Leu Gly Asp Ser Gly Gln Thr Gly Ser Thr Ala Glu Pro Ala Glu
 145 150 155 160
 Thr Asp Gln Asp Arg Ala Trp Arg Glu Tyr Leu Thr Ala Ser Ala Ala
 165 170 175
 Ala Pro Val Val Gln Thr Val Glu Val Ser Tyr Ile Asp Thr Ala Val
 180 185 190

Glu Thr Pro Val Pro His Thr Thr Ser Leu Arg Lys Gln Ala Ile Ser
 195 200 205

Arg Lys Arg Asp Phe Arg Pro Lys His Arg Ala Lys Pro Lys Leu Arg
 210 215 220

Val Arg Lys Ser
 225

<210> 71
 <211> 687
 <212> DNA
 <213> Neisseria meningitidis

<400> 71
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 ggccccgaac gcctgccccga ggccgcccgc accgcccggac ggctcatcgg caggctgcaa 120
 cgctttgtcg gcagcgtaaa acaggaattt gacacgcaaa tcgaactgga agaactaagg 180
 aaggcaaaagc aggaatttga agctgccgct gctcagggtc gagacagcct caaagaaaacc 240
 ggtacggata tggagggttaa tctgcacgac atttccgacg gtctgaagcc ttgggaaaaaa 300
 ctgcccgaac agcgcacgcc tctgtatttc ggtgtcgatg aaaacggcaa tccctttccc 360
 gatgcggcaa acaccctatt agacggcatt tccgacgtta tgccgtccga acgttcctac 420
 gcttccgccc aaacccttgg ggacagcggg caaaccggca gtacagccga acccgcgga 480
 accgaccaag accgtgcatg gcgggaatac ctgactgctt ctgccgccgc acccgtcgta 540
 cagaccgtcg aagtcagcta tatcgatacc gctgttgaaa ccctgttcc gcataccact 600
 tcgctgcgta aacaggcaat aagccgcaaa cgcgatttgc gtcctaaatc ccgcgcaaaa 660
 cctaaattgc gcgtccgtaa atcataa 687

<210> 72
 <211> 228
 <212> PRT
 <213> Neisseria meningitidis

<400> 72
 Met Phe Asp Phe Gly Leu Gly Glu Leu Val Phe Val Gly Ile Ile Ala
 1 5 10 15
 Leu Ile Val Leu Gly Pro Glu Arg Leu Pro Glu Ala Ala Arg Thr Ala
 20 25 30
 Gly Arg Leu Ile Gly Arg Leu Gln Arg Phe Val Gly Ser Val Lys Gln
 35 40 45
 Glu Phe Asp Thr Gln Ile Glu Leu Glu Glu Leu Arg Lys Ala Lys Gln
 50 55 60
 Glu Phe Glu Ala Ala Ala Ala Gln Val Arg Asp Ser Leu Lys Glu Thr
 65 70 75 80
 Gly Thr Asp Met Glu Gly Asn Leu His Asp Ile Ser Asp Gly Leu Lys
 85 90 95
 Pro Trp Glu Lys Leu Pro Glu Gln Arg Thr Pro Ala Asp Phe Gly Val
 100 105 110

Asp Glu Asn Gly Asn Pro Phe Pro Asp Ala Ala Asn Thr Leu Leu Asp
 115 120 125

Gly Ile Ser Asp Val Met Pro Ser Glu Arg Ser Tyr Ala Ser Ala Glu

130 135 140

Thr Leu Gly Asp Ser Gly Gln Thr Gly Ser Thr Ala Glu Pro Ala Glu
 145 150 155 160

Thr Asp Gln Asp Arg Ala Trp Arg Glu Tyr Leu Thr Ala Ser Ala Ala
 165 170 175

Ala Pro Val Val Gln Thr Val Glu Val Ser Tyr Ile Asp Thr Ala Val
 180 185 190

Glu Thr Pro Val Pro His Thr Thr Ser Leu Arg Lys Gln Ala Ile Ser
 195 200 205

Arg Lys Arg Asp Leu Arg Pro Lys Ser Arg Ala Lys Pro Lys Leu Arg
 210 215 220

Val Arg Lys Ser
 225

<210> 73
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 73
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8

<210> 74
 <211> 136
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 74
 Met Phe Asp Phe Gly Leu Gly Glu Leu Ile Phe Val Gly Ile Ile Ala
 1 5 10 15

Leu Ile Val Leu Gly Pro Glu Arg Leu Pro Glu Ala Ala Arg Thr Ala
 20 25 30

Gly Arg Leu Ile Gly Arg Leu Gln Arg Phe Val Gly Ser Val Lys Gln
 35 40 45

Glu Leu Asp Thr Gln Ile Glu Leu Glu Glu Leu Arg Lys Val Lys Gln
 50 55 60

Ala Phe Glu Ala Ala Ala Ala Gln Val Arg Asp Ser Leu Lys Glu Thr
65 70 75 80

Asp Thr Asp Met Gln Asn Ser Leu His Asp Ile Ser Asp Gly Leu Lys
85 90 95

Pro Trp Glu Lys Leu Pro Glu Gln Arg Thr Pro Ala Asp Phe Gly Val
100 105 110

Asp Glu Lys Gly Asn Ser Leu Ser Arg Tyr Gly Lys His Arg Ile Arg
115 120 125

Arg His Phe Arg Arg Tyr Ala Val
130 135

<210> 75
<211> 690
<212> DNA
<213> Neisseria gonorrhoeae

<400> 75
atgtttgatt tccggtttggg cgagctgatt tttgtcggca ttatcgccct gattgtcctt 60
gggtccagaac gcctgcccga agccgcccgc actgccggac ggcttatcgg caggctgcaa 120
cgctttgtag gaagcgtcaa acaagaactt gacactcaaa tcgaactgga agagctgagg 180
aaggtcaagc aggcattcga agctgccgcc gctcagggtt gagacagcct caaagaaacc 240
gatacggata tgcagaacag tctgcacgac atttccgacg gtctgaagcc ttgggaaaaa 300
ctgcccgaac agcgcacgcc tgccgatttc ggtgtcgatg aaaacggcaa tccccttccc 360
gatacggcaa acaccgtatc agacggcatt tccgacgtta tgccgtctga acgttccgat 420
acttccgccc aaacccttgg ggacgacagg caaacgggca gtacagccga acctgcccga 480
accgacaaag accgcgcatg gcgggaatac ctgactgctt ctgccgccgc acctgtcgta 540
cagaggggccg tcgaagtcag ctatatcgat actgctgttg aaacgcctgt tccgcacacc 600
acttccctgc gcaaacaggc aataaaccgc aaacgcgatt tttgtccgaa acaccgcgcc 660
aaaccgaaat tgcgcgtccg taaatcataa 690

<210> 76
<211> 229
<212> PRT
<213> Neisseria gonorrhoeae

<400> 76
Met Phe Asp Phe Gly Leu Gly Glu Leu Ile Phe Val Gly Ile Ile Ala
1 5 10 15

Leu Ile Val Leu Gly Pro Glu Arg Leu Pro Glu Ala Ala Arg Thr Ala
20 25 30

Gly Arg Leu Ile Gly Arg Leu Gln Arg Phe Val Gly Ser Val Lys Gln
35 40 45

Glu Leu Asp Thr Gln Ile Glu Leu Glu Glu Leu Arg Lys Val Lys Gln
50 55 60

Ala Phe Glu Ala Ala Ala Ala Gln Val Arg Asp Ser Leu Lys Glu Thr
65 70 75 80

Asp Thr Asp Met Gln Asn Ser Leu His Asp Ile Ser Asp Gly Leu Lys

85	90	95
Pro Trp Glu Lys Leu Pro Glu Gln Arg Thr Pro Ala Asp Phe Gly Val		
100	105	110
Asp Glu Asn Gly Asn Pro Leu Pro Asp Thr Ala Asn Thr Val Ser Asp		
115	120	125
Gly Ile Ser Asp Val Met Pro Ser Glu Arg Ser Asp Thr Ser Ala Glu		
130	135	140
Thr Leu Gly Asp Asp Arg Gln Thr Gly Ser Thr Ala Glu Pro Ala Glu		
145	150	155
Thr Asp Lys Asp Arg Ala Trp Arg Glu Tyr Leu Thr Ala Ser Ala Ala		
165	170	175
Ala Pro Val Val Gln Arg Ala Val Glu Val Ser Tyr Ile Asp Thr Ala		
180	185	190
Val Glu Thr Pro Val Pro His Thr Thr Ser Leu Arg Lys Gln Ala Ile		
195	200	205
Asn Arg Lys Arg Asp Phe Cys Pro Lys His Arg Ala Lys Pro Lys Leu		
210	215	220
Arg Val Arg Lys Ser		
225		

<210> 77
 <211> 639
 <212> DNA
 <213> Neisseria meningitidis

<400> 77
 atgcaagcac ggctgctgat acctattctt ttttcagttt ttattttatc cgctgcggga 60
 cactgacagg tattccatcg catggcggag ktaaacgctt tgcggtcgaa caagaacttg 120
 tggcgcgttc tgccagagct gccgttaaag acatggattt acaggcatta cacggacgaa 180
 aagttgcatt gtacattgcc actatgggcg accaagggtt aggcagtttg acaggggggt 240
 cgctactcca ttgatgcack grtwcstggc gaatacataa acagccctgc cgtccgtacc 300
 gattacacct atccacgtta cgaaaccacc gctgaaacaa catcaggcgg tttgacaggt 360
 ttaaccactt ctttatctac acttaatgcc cctgcactct ctgcaccca atcagacggt 420
 agcgggaagta aaagcagtct gggcttaaat attggcggga tgggggatta tcgaaatgaa 480
 accttgacga ctaaccgcg cgacactgcc tttctttccc acttggtaca gaccgtat 540
 ttcttgcgcg gcatagacgt tgtttctcct gccaatgccg atacagatgt gtttattaac 600
 atcgacgtat tcggaacgat acgcaacaga accgaaatg 639

<210> 78
 <211> 213
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (31)..(31)

<223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (87)..(89)

<223> Xaa= any amino acid

<400> 78

Met Gln Ala Arg Leu Leu Ile Pro Ile Leu Phe Ser Val Phe Ile Leu
1 5 10 15

Ser Ala Cys Gly Thr Leu Thr Gly Ile Pro Ser His Gly Gly Xaa Lys
20 25 30

Arg Phe Ala Val Glu Gln Glu Leu Val Ala Ala Ser Ala Arg Ala Ala
35 40 45

Val Lys Asp Met Asp Leu Gln Ala Leu His Gly Arg Lys Val Ala Leu
50 55 60

Tyr Ile Ala Thr Met Gly Asp Gln Gly Ser Gly Ser Leu Thr Gly Gly
65 70 75 80

Arg Tyr Ser Ile Asp Ala Xaa Xaa Xaa Gly Glu Tyr Ile Asn Ser Pro
85 90 95

Ala Val Arg Thr Asp Tyr Thr Tyr Pro Arg Tyr Glu Thr Thr Ala Glu
100 105 110

Thr Thr Ser Gly Gly Leu Thr Gly Leu Thr Thr Ser Leu Ser Thr Leu
115 120 125

Asn Ala Pro Ala Leu Ser Arg Thr Gln Ser Asp Gly Ser Gly Ser Lys
130 135 140

Ser Ser Leu Gly Leu Asn Ile Gly Gly Met Gly Asp Tyr Arg Asn Glu
145 150 155 160

Thr Leu Thr Thr Asn Pro Arg Asp Thr Ala Phe Leu Ser His Leu Val
165 170 175

Gln Thr Val Phe Phe Leu Arg Gly Ile Asp Val Val Ser Pro Ala Asn
180 185 190

Ala Asp Thr Asp Val Phe Ile Asn Ile Asp Val Phe Gly Thr Ile Arg
195 200 205

Asn Arg Thr Glu Met
210

<210> 79

<211> 963

<212> DNA

<213> Neisseria meningitidis

<400> 79
atgcaagcac ggctgctgat acctattctt ttttcagttt ttattttatc cgctgcgagg 60
acactgacag gtattccatc gcacggcgga ggtaaacgct ttgcggtcga acaagaactt 120
gtggccgctt ctgccagagc tgccgttaaa gacatggatt tacaggcatt acacggacga 180
aaagttgcat tgtacattgc cactatgggc gaccaagggt caggcagttt gacagggggt 240
cgctactcca ttgatgcact gattcgtggc gaatacataa acagccctgc cgtccgtacc 300
gattacacct atccacgtta cgaaaccacc gctgaaacaa catcaggcgg tttgacaggt 360
ttaaccactt ctttatctac acttaatgcc cctgcaactc ctcgcacca atcagacggt 420

agcgaagta aaagcagtct gggcttaaat attggcgagg tgggggatta tcgaaatgaa 480
accttgacga ctaaccgcgc gcacactgcc tttctttccc acttggtaca gaccgtatct 540
ttcctgcgcg gcatagacgt tggttctcct gccaatgccg atacagatgt gtttattaac 600
atcgacgtat tcggaacgat acgcaacaga accgaaatgc acctatacaa tgccgaaaca 660
ctgaaagccc aaacaaaact ggaatatttc gcagtagaca gaaccaataa aaaattgctc 720
atcaaaccaa aaaccaatgc gtttgaagct gcctataaag aaaattacgc attgtggatg 780
gggccgtata aagtaagcaa aggaattaaa ccgacggaag gattaatggt cgatttctcc 840
gatatccgac catacggcaa tcatacgggt aactccgccc catccgtaga ggctgataac 900
agtcatgagg ggtatggata cagcgatgaa gtagtgcgac aacatagaca aggacaacct 960
tga 963

<210> 80
<211> 320
<212> PRT
<213> Neisseria meningitidis

<400> 80
Met Gln Ala Arg Leu Leu Ile Pro Ile Leu Phe Ser Val Phe Ile Leu
1 5 10 15
Ser Ala Cys Gly Thr Leu Thr Gly Ile Pro Ser His Gly Gly Gly Lys
20 25 30
Arg Phe Ala Val Glu Gln Glu Leu Val Ala Ala Ser Ala Arg Ala Ala
35 40 45
Val Lys Asp Met Asp Leu Gln Ala Leu His Gly Arg Lys Val Ala Leu
50 55 60
Tyr Ile Ala Thr Met Gly Asp Gln Gly Ser Gly Ser Leu Thr Gly Gly
65 70 75 80
Arg Tyr Ser Ile Asp Ala Leu Ile Arg Gly Glu Tyr Ile Asn Ser Pro
85 90 95
Ala Val Arg Thr Asp Tyr Thr Tyr Pro Arg Tyr Glu Thr Thr Ala Glu
100 105 110
Thr Thr Ser Gly Gly Leu Thr Gly Leu Thr Thr Ser Leu Ser Thr Leu
115 120 125
Asn Ala Pro Ala Leu Ser Arg Thr Gln Ser Asp Gly Ser Gly Ser Lys
130 135 140
Ser Ser Leu Gly Leu Asn Ile Gly Gly Met Gly Asp Tyr Arg Asn Glu
145 150 155 160

Thr Leu Thr Thr Asn Pro Arg Asp Thr Ala Phe Leu Ser His Leu Val
 165 170 175
 Gln Thr Val Phe Phe Leu Arg Gly Ile Asp Val Val Ser Pro Ala Asn
 180 185 190
 Ala Asp Thr Asp Val Phe Ile Asn Ile Asp Val Phe Gly Thr Ile Arg
 195 200 205
 Asn Arg Thr Glu Met His Leu Tyr Asn Ala Glu Thr Leu Lys Ala Gln
 210 215 220
 Thr Lys Leu Glu Tyr Phe Ala Val Asp Arg Thr Asn Lys Lys Leu Leu
 225 230 235 240
 Ile Lys Pro Lys Thr Asn Ala Phe Glu Ala Ala Tyr Lys Glu Asn Tyr
 245 250 255
 Ala Leu Trp Met Gly Pro Tyr Lys Val Ser Lys Gly Ile Lys Pro Thr
 260 265 270
 Glu Gly Leu Met Val Asp Phe Ser Asp Ile Arg Pro Tyr Gly Asn His
 275 280 285
 Thr Gly Asn Ser Ala Pro Ser Val Glu Ala Asp Asn Ser His Glu Gly
 290 295 300
 Tyr Gly Tyr Ser Asp Glu Val Val Arg Gln His Arg Gln Gly Gln Pro
 305 310 315 320

<210> 81
 <211> 963
 <212> DNA
 <213> Neisseria meningitidis

<400> 81
 atgcaagcac ggctgctgat acctattctt ttttcagttt ttattttatc cgctgcgagg 60
 aactgacag gtattccatc gcatggcgga ggtaaacgct ttgcggtcga acaagaactt 120
 gtggccgctt ctgccagagc tgccgttaaa gacatggatt tacaggcatt acacggacga 180
 aaagttgcat tgtacattgc aactatgggc gaccaagggt caggcagttt gacaggggggt 240
 cgctactcca ttgatgcact gattcgtggc gaatacataa acagccctgc cgtccgtacc 300
 gattacacct atccacgtta cgaaaccacc gctgaaacaa catcaggcgg tttgacaggt 360
 ttaaccactt ctttatctac acttaatgcc cctgcactct cgcgcaccca atcagacggt 420
 agcgaagta aaagcagtct gggcttaaat attggcgagg tgggggatta tcgaaatgaa 480
 accttgacga ctaaccgcg cgacactgcc tttctttccc acttggtaca gaccgtattt 540
 ttcttgccgc gcatagacgt tgtttctcct gccaatgccg atacggatgt gtttattaac 600
 atcgacgtat tcggaacgat acgcaacaga accgaaatgc acctatacaa tgccgaaaca 660
 ctgaaagccc aaacaaaact ggaatatttc gcagtagaca gaaccaataa aaaattgctc 720
 atcaaaccaa aaaccaatgc gtttgaagct gcctataaag aaaattacgc attgtggatg 780
 ggaccgtata aagtaagcaa aggaattaaa ccgacagaag gattaatggt cgatttctcc 840
 gatattcaac catacggcaa tcatatgggt aactctgccc catccgtaga ggctgataac 900
 agtcatgagg ggtatggata cagcgatgaa gcagtgcgac gacatagaca agggcaacct 960
 tga 963

<210> 82

<211> 320

<212> PRT

<213> Neisseria meningitidis

<400> 82

Met Gln Ala Arg Leu Leu Ile Pro Ile Leu Phe Ser Val Phe Ile Leu
1 5 10 15

Ser Ala Cys Gly Thr Leu Thr Gly Ile Pro Ser His Gly Gly Gly Lys
20 25 30

Arg Phe Ala Val Glu Gln Glu Leu Val Ala Ala Ser Ala Arg Ala Ala
35 40 45

Val Lys Asp Met Asp Leu Gln Ala Leu His Gly Arg Lys Val Ala Leu
50 55 60

Tyr Ile Ala Thr Met Gly Asp Gln Gly Ser Gly Ser Leu Thr Gly Gly
65 70 75 80

Arg Tyr Ser Ile Asp Ala Leu Ile Arg Gly Glu Tyr Ile Asn Ser Pro
85 90 95

Ala Val Arg Thr Asp Tyr Thr Tyr Pro Arg Tyr Glu Thr Thr Ala Glu
100 105 110

Thr Thr Ser Gly Gly Leu Thr Gly Leu Thr Thr Ser Leu Ser Thr Leu
115 120 125

Asn Ala Pro Ala Leu Ser Arg Thr Gln Ser Asp Gly Ser Gly Ser Lys
130 135 140

Ser Ser Leu Gly Leu Asn Ile Gly Gly Met Gly Asp Tyr Arg Asn Glu
145 150 155 160

Thr Leu Thr Thr Asn Pro Arg Asp Thr Ala Phe Leu Ser His Leu Val
165 170 175

Gln Thr Val Phe Phe Leu Arg Gly Ile Asp Val Val Ser Pro Ala Asn
180 185 190

Ala Asp Thr Asp Val Phe Ile Asn Ile Asp Val Phe Gly Thr Ile Arg
195 200 205

Asn Arg Thr Glu Met His Leu Tyr Asn Ala Glu Thr Leu Lys Ala Gln
210 215 220

Thr Lys Leu Glu Tyr Phe Ala Val Asp Arg Thr Asn Lys Lys Leu Leu
225 230 235 240

Ile Lys Pro Lys Thr Asn Ala Phe Glu Ala Ala Tyr Lys Glu Asn Tyr
245 250 255

Ala Leu Trp Met Gly Pro Tyr Lys Val Ser Lys Gly Ile Lys Pro Thr
260 265 270

Glu Gly Leu Met Val Asp Phe Ser Asp Ile Gln Pro Tyr Gly Asn His
 275 280 285

Met Gly Asn Ser Ala Pro Ser Val Glu Ala Asp Asn Ser His Glu Gly
 290 295 300

Tyr Gly Tyr Ser Asp Glu Ala Val Arg Arg His Arg Gln Gly Gln Pro
 305 310 315 320

<210> 83
 <211> 963

<212> DNA
 <213> *Neisseria gonorrhoeae*

<400> 83
 atgcgggcac ggctgctgat acctattctt ttttcagttt ttattttatc cgcctgcggg 60
 aactgacag gtattccatc gcatggcgga ggcaaacgct tcgcggtcga acaagaactt 120
 gtggcgcgtt ctgccagagc tgccgttaaa gacatggatt tacaggcatt acacggacga 180
 aaagttgcat tgtacattgc aactatgggc gaccaagggt caggcagttt gacagggggt 240
 cgctactcca ttgatgcact gattcgcggc gaatacataa acagccctgc cgtccgcacc 300
 gattacacct atccgcgtta cgaaaccacc gctgaaacaa catcaggcgg tttgacgggt 360
 ttaaccactt ctttatctac acttaatgcc cctgcactct cgcgcaccca atcagacggg 420
 agcgggaagta ggagcagtct gggcttaaat attggcgagg tgggggatta tcgaaatgaa 480
 accttgacga ccaaccgcgc cgacactgcc tttctttccc acttggtgca gaccgtattt 540
 ttcttgcgcg gcatagacgt tgtttctcct gccaatgccg atacagatgt gtttattaac 600
 atcgacgtat tcggaacgat acgcaacaga accgaaatgc acctatacaa tgccgaaaca 660
 ctgaaagccc aaacaaaact ggaatatttc gcagtagaca gaaccaataa aaaattgctc 720
 atcaaaccga aaaccaatgc gtttgaagct gcctataaag aaaattacgc attgtggatg 780
 gggccgtata aagtaagcaa aggaatcaaa ccgacggaag gattgatggg cgatttctcc 840
 gatatacaac catacggcaa tcatacgggt aactccgccc catccgtaga ggctgataac 900
 agtcacgagg ggtatggata cagcgatgaa gcagtgcgac aacatagaca agggcaacct 960
 tga 963

<210> 84
 <211> 320
 <212> PRT
 <213> *Neisseria gonorrhoeae*

<400> 84
 Met Arg Ala Arg Leu Leu Ile Pro Ile Leu Phe Ser Val Phe Ile Leu
 1 5 10 15
 Ser Ala Cys Gly Thr Leu Thr Gly Ile Pro Ser His Gly Gly Gly Lys
 20 25 30
 Arg Phe Ala Val Glu Gln Glu Leu Val Ala Ala Ser Ala Arg Ala Ala
 35 40 45
 Val Lys Asp Met Asp Leu Gln Ala Leu His Gly Arg Lys Val Ala Leu
 50 55 60
 Tyr Ile Ala Thr Met Gly Asp Gln Gly Ser Gly Ser Leu Thr Gly Gly
 65 70 75 80
 Arg Tyr Ser Ile Asp Ala Leu Ile Arg Gly Glu Tyr Ile Asn Ser Pro

tgcggttcc	ccgcccataa	agccatcggc	acatcatccg	gccttgccctg	gccgattgca	360
ctctccggcg	caatatcgta	tctgctcaac	ggcctgaata	ttgcaggatt	gcccgaaggg	420
tcaactgggct	tcctttacct	gcccgcgcgtc	gccgtcctca	gcgcggcaac	cattgccttt	480
gccccgctcg	gtgtcaaaac	cgcccacaaa	ctttcttctg	ccaaactcaa	aaaatcttcg	540
gcattatggt	gcttttgatt	gccggaaaaa	tgctgtacaa	cctgctttaa		590

<210> 86
 <211> 196
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature

<222> (71)..(71)
 <223> Xaa= any amino acid

<400> 86
 Gly Gln His Lys Lys Gln Ala Val Asn Gly Lys Thr Val Phe Thr Met
 1 5 10 15
 Met Pro Gly Met Ile Phe Gly Val Phe Thr Gly Ala Phe Ser Ala Lys
 20 25 30
 Tyr Ile Pro Ala Phe Gly Leu Gln Ile Phe Phe Ile Leu Phe Leu Thr
 35 40 45
 Ala Val Ala Phe Lys Thr Leu His Thr Asp Pro Gln Thr Ala Ser Arg
 50 55 60
 Pro Leu Pro Gly Leu Pro Xaa Leu Thr Ala Val Ser Thr Leu Phe Gly
 65 70 75 80
 Thr Met Ser Ser Trp Val Gly Ile Gly Gly Gly Ser Leu Ser Val Pro
 85 90 95
 Phe Leu Ile His Cys Gly Phe Pro Ala His Lys Ala Ile Gly Thr Ser
 100 105 110
 Ser Gly Leu Ala Trp Pro Ile Ala Leu Ser Gly Ala Ile Ser Tyr Leu
 115 120 125
 Leu Asn Gly Leu Asn Ile Ala Gly Leu Pro Glu Gly Ser Leu Gly Phe
 130 135 140
 Leu Tyr Leu Pro Ala Val Ala Val Leu Ser Ala Ala Thr Ile Ala Phe
 145 150 155 160
 Ala Pro Leu Gly Val Lys Thr Ala His Lys Leu Ser Ser Ala Lys Leu
 165 170 175
 Lys Lys Ser Phe Gly Ile Met Leu Leu Leu Ile Ala Gly Lys Met Leu
 180 185 190
 Tyr Asn Leu Leu
 195

<210> 87
 <211> 806
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 87
 atgtggcatt gggacattat cttaatcctg cttgccgtag gcagtgcggc aggtttttatt 60
 gccggcctgt tcggcgtagg cggcggcacg ctgattgtcc ctgtcgtttt atgggtgctt 120
 gatttgcagg gtttggcaca acatccttac gcgcaacacc tcgccgtcgg cacatccttc 180
 gccgtcatgg tcttcaccgc cttttccagt atgctggggc agcacaaaaa acaggcggtc 240
 gactggaaaa ccgtattttac gatgatgccg ggtatgatat tcggcggtatt cacgggcgca 300
 ctctccgcaa aatatatccc cgcgttcggg cttcaaattt tcttcatact gtttttaacc 360
 gccgtcgcgt tcaaaacact gcataccgac cctcagacgg catcccggcc gctgcccgga 420

ctgcccggac tgactgcggt ttccacactg ttccggcacia tgctcgagctg ggtcggcata 480
 ggcggcgggt cactttccgt ccccttctta atccactgcg gcttccccgc ccataaagcc 540
 atcggcacat catcgggctt tgccctggcg attgcactct ccggcgcaat atcgatatcg 600
 ctcaacggcc tgaatattgc aggattgccc gaagggtcac tgggcttctt ttacctgccc 660
 gccgtcgcgg tcttcagcgc ggcaaccatt gcctttgccc cgctcggtgt caaaaccgcc 720
 cacaaacttt cttctgcaa actcaaaaaa tcttcggcat tatgttgctt ttgattgcgg 780
 gaaaaatgct gtacaacctg ctttaa 806

<210> 88
 <211> 268
 <212> PRT
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature
 <222> (251)..(251)
 <223> Xaa= any amino acid

<400> 88
 Met Trp His Trp Asp Ile Ile Leu Ile Leu Leu Ala Val Gly Ser Ala
 1 5 10 15
 Ala Gly Phe Ile Ala Gly Leu Phe Gly Val Gly Gly Gly Thr Leu Ile
 20 25 30
 Val Pro Val Val Leu Trp Val Leu Asp Leu Gln Gly Leu Ala Gln His
 35 40 45
 Pro Tyr Ala Gln His Leu Ala Val Gly Thr Ser Phe Ala Val Met Val
 50 55 60
 Phe Thr Ala Phe Ser Ser Met Leu Gly Gln His Lys Lys Gln Ala Val
 65 70 75 80
 Asp Trp Lys Thr Val Phe Thr Met Met Pro Gly Met Ile Phe Gly Val
 85 90 95
 Phe Thr Gly Ala Leu Ser Ala Lys Tyr Ile Pro Ala Phe Gly Leu Gln
 100 105 110
 Ile Phe Phe Ile Leu Phe Leu Thr Ala Val Ala Phe Lys Thr Leu His

115	120	125
Thr Asp Pro Gln Thr Ala Ser Arg Pro Leu Pro Gly Leu Pro Gly Leu		
130	135	140
Thr Ala Val Ser Thr Leu Phe Gly Thr Met Ser Ser Trp Val Gly Ile		
145	150	155
Gly Gly Gly Ser Leu Ser Val Pro Phe Leu Ile His Cys Gly Phe Pro		
165	170	175
Ala His Lys Ala Ile Gly Thr Ser Ser Gly Leu Ala Trp Pro Ile Ala		
180	185	190
Leu Ser Gly Ala Ile Ser Tyr Leu Leu Asn Gly Leu Asn Ile Ala Gly		
195	200	205
Leu Pro Glu Gly Ser Leu Gly Phe Leu Tyr Leu Pro Ala Val Ala Val		
210	215	220
Leu Ser Ala Ala Thr Ile Ala Phe Ala Pro Leu Gly Val Lys Thr Ala		
225	230	235
His Lys Leu Ser Ser Ala Lys Leu Lys Lys Xaa Phe Gly Ile Met Leu		
245	250	255
Leu Leu Ile Ala Gly Lys Met Leu Tyr Asn Leu Leu		
260	265	

<210> 89
 <211> 807
 <212> DNA
 <213> Neisseria meningitidis

<400> 89
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 gccggcctgt tcggcgtagg cggcggcagc ctgattgtcc ctgtcgtttt atgggtgctt 120
 gatttgcagg gtttggcaca acatccttac gcgcaacacc tcggcgtcgg cacatccttc 180
 gccgtcatgg tcttcaccgc cttttccagt atgctggggc agcacaaaaa acaggcggtc 240
 gactggaaaa ccgtattttac gatgatgccg ggtatggtat tcggcggtatt cgctggcgca 300
 ctctccgcaa aatatatccc agcgttcggg cttcaaattt tcttcatacct gtttttaacc 360
 gccgtcgcat tcaaaacact gcataccgac cctcagacgg catcccggcc gctgcccgga 420
 ctgcccggac tgactgcggt ttccacactg ttccggcaca tgtcgagctg ggtcggcata 480
 ggcggcggtt cactttccgt ccccttctta atccactgcg gcttccccgc ccataaagcc 540
 atcggcacat catccggcct tgccctggccg attgcactct ccggcgcaat atcgtatctg 600
 ctcaacggcc tgaatattgc aggattgccc gaagggtcac tgggttccct ttacctgccc 660
 gccgtcgccg tcttcagcgc ggcaaccatt gcctttgccc cgctcggtgt caaaaccgcc 720
 cacaaacttt cttctgcaa actcaaaaaa tccttcggca ttatgttgct tttgattgcc 780
 ggaaaaatgc tgtacaacct gctttaa 807

<210> 90
 <211> 268
 <212> PRT
 <213> Neisseria meningitidis

<400> 90
 Met Trp His Trp Asp Ile Ile Leu Ile Leu Leu Ala Val Gly Ser Ala
 1 5 10 15
 Ala Gly Phe Ile Ala Gly Leu Phe Gly Val Gly Gly Gly Thr Leu Ile
 20 25 30
 Val Pro Val Val Leu Trp Val Leu Asp Leu Gln Gly Leu Ala Gln His
 35 40 45
 Pro Tyr Ala Gln His Leu Ala Val Gly Thr Ser Phe Ala Val Met Val
 50 55 60
 Phe Thr Ala Phe Ser Ser Met Leu Gly Gln His Lys Lys Gln Ala Val
 65 70 75 80
 Asp Trp Lys Thr Val Phe Thr Met Met Pro Gly Met Val Phe Gly Val
 85 90 95
 Phe Ala Gly Ala Leu Ser Ala Lys Tyr Ile Pro Ala Phe Gly Leu Gln
 100 105 110
 Ile Phe Phe Ile Leu Phe Leu Thr Ala Val Ala Phe Lys Thr Leu His
 115 120 125
 Thr Asp Pro Gln Thr Ala Ser Arg Pro Leu Pro Gly Leu Pro Gly Leu
 130 135 140
 Thr Ala Val Ser Thr Leu Phe Gly Thr Met Ser Ser Trp Val Gly Ile
 145 150 155 160
 Gly Gly Gly Ser Leu Ser Val Pro Phe Leu Ile His Cys Gly Phe Pro
 165 170 175
 Ala His Lys Ala Ile Gly Thr Ser Ser Gly Leu Ala Trp Pro Ile Ala
 180 185 190
 Leu Ser Gly Ala Ile Ser Tyr Leu Leu Asn Gly Leu Asn Ile Ala Gly
 195 200 205
 Leu Pro Glu Gly Ser Leu Gly Phe Leu Tyr Leu Pro Ala Val Ala Val
 210 215 220
 Leu Ser Ala Ala Thr Ile Ala Phe Ala Pro Leu Gly Val Lys Thr Ala
 225 230 235 240
 His Lys Leu Ser Ser Ala Lys Leu Lys Lys Ser Phe Gly Ile Met Leu
 245 250 255
 Leu Leu Ile Ala Gly Lys Met Leu Tyr Asn Leu Leu
 260 265

<210> 91
 <211> 8
 <212> DNA

<213> Neisseria gonorrhoeae

<220>

<221> misc_feature

<222> (1)..(8)

<223> N= Unknown

<400> 91

nnnnnnnn

8

<210> 92

<211> 268

<212> PRT

<213> Neisseria gonorrhoeae

<400> 92

Met Trp His Trp Asp Ile Ile Leu Ile Leu Leu Ala Val Gly Ser Ala

1	5	10	15
Ala Gly Phe Ile Ala Gly Leu Phe Gly Val Gly Gly Gly Thr Leu Ile	20	25	30
Val Pro Val Val Leu Trp Val Leu Asp Leu Gln Gly Leu Ala Gln His	35	40	45
Pro Tyr Ala Gln His Leu Ala Val Gly Thr Ser Phe Ala Val Met Val	50	55	60
Phe Thr Ala Phe Ser Ser Met Leu Gly Gln His Lys Lys Gln Ala Val	65	70	75
Asp Trp Lys Thr Ile Phe Ala Met Met Pro Gly Met Ile Phe Gly Val	85	90	95
Phe Ala Gly Ala Leu Ser Ala Lys Tyr Ile Pro Ala Phe Gly Leu Gln	100	105	110
Ile Phe Phe Ile Leu Phe Leu Thr Ala Val Ala Phe Lys Thr Leu His	115	120	125
Thr Gly Arg Gln Thr Ala Ser Arg Pro Leu Pro Gly Leu Pro Gly Leu	130	135	140
Thr Ala Val Ser Thr Leu Phe Gly Ala Met Ser Ser Trp Val Gly Ile	145	150	155
Gly Gly Gly Ser Leu Ser Val Pro Phe Leu Ile His Cys Gly Phe Pro	165	170	175
Ala His Lys Ala Ile Gly Thr Ser Ser Gly Leu Ala Trp Pro Ile Ala	180	185	190
Leu Ser Gly Ala Ile Ser Tyr Leu Val Asn Gly Leu Asn Ile Ala Gly	195	200	205

Leu Pro Glu Gly Ser Leu Gly Phe Leu Tyr Leu Pro Ala Val Ala Val
 210 215 220

Leu Ser Ala Ala Thr Ile Ala Phe Ala Pro Leu Gly Val Lys Thr Ala
 225 230 235 240

His Lys Leu Ser Ser Ala Lys Leu Lys Glu Ser Phe Gly Ile Met Leu
 245 250 255

Leu Leu Ile Ala Gly Lys Met Leu Tyr Asn Leu Leu
 260 265

<210> 93
 <211> 807
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 93

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gccggcctgt	tcggtgtagg	cggcggtacg	ctgattgtcc	ctgtcgtttt	atgggtgctt	120
gatttgcagg	gtttggcaca	acatccttac	gcgcaacacc	tcgccgtcgg	cacatccttc	180
gccgtcatgg	tcttcaccgc	cttttccagt	atgttggggc	agcacaaaaa	acaggcggtc	240
gactggaaaa	ccatatttgc	gatgatgccg	ggtatgatat	tcggcgattt	cgctggcgca	300
ctctccgcaa	aatatatccc	cgcgttcggg	cttcaaattt	tcttcatact	gtttttaacc	360
gccgtcgcat	tcaaaacact	gcataccggt	cgtcagacgg	catcccgccc	gctgcccggg	420
ctgcccggac	tgactgcggt	ttccacactg	ttcggcgcaa	tgtcgagctg	ggtcggcata	480
ggcgggcggt	cactttccgt	ccccttctta	atccactgcg	gcttccccgc	ccataaagcc	540
atcggcacat	catccggcct	tgcttggccg	attgcaactt	ccggcgcaat	atcgatatctg	600
gtcaacggtc	tgaatattgc	aggattgccc	gaagggtcgc	tgggcttctt	ttacctgccc	660
gccgtcgccg	tcctcagcgc	ggcaaccatt	gcctttgccc	cgctcggtgt	caaaaccgcc	720
cacaaacttt	cttctgccaa	actcaaagaa	tccttcggca	ttatgttgct	tttgattgcc	780
ggaaaaatgc	tgtacaacct	gcttttaa				807

<210> 94
 <211> 268
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 94

Met Trp His Trp Asp Ile Ile Leu Ile Leu Leu Ala Val Gly Ser Ala
 1 5 10 15

Ala Gly Phe Ile Ala Gly Leu Phe Gly Val Gly Gly Gly Thr Leu Ile
 20 25 30

Val Pro Val Val Leu Trp Val Leu Asp Leu Gln Gly Leu Ala Gln His
 35 40 45

Pro Tyr Ala Gln His Leu Ala Val Gly Thr Ser Phe Ala Val Met Val
 50 55 60

Phe Thr Ala Phe Ser Ser Met Leu Gly Gln His Lys Lys Gln Ala Val
 65 70 75 80

Asp Trp Lys Thr Ile Phe Ala Met Met Pro Gly Met Ile Phe Gly Val

Ala Val Ser Asn Val Ser Met Thr Leu Ala Phe Val Gly Ile Cys Ala
20 25 30

Leu Val His Tyr Cys Phe Ser Gly Thr Val Gln Val Phe Val Phe Ala
35 40 45

Ala Leu Leu Lys Leu Tyr Ala Leu Lys Pro Val Tyr Trp Phe Val Leu
50 55 60

Gln Phe Val Leu Met Ala Val Ala Tyr Val His Arg Cys Gly Ile Asp
65 70 75 80

Arg Gln Pro Pro Ser Thr Phe Gly Gly Ser Gln Leu Arg Leu Gly Gly
85 90 95

Leu Thr Ala Ala Leu Met Gln Val Ser Val Leu Val Leu Leu Leu Ser
100 105 110

Glu Ile Gly Arg

115

<210> 97
<211> 606
<212> DNA
<213> *Neisseria meningitidis*

<400> 97
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ctgatattcc ggcaggaat gttgcaatgg ttttgggcca gtattatgct gtggctgggc 120
atatcgggtt tgggggcaaa gctgatgcc ggcataatgg gaatgaccgc cgccgcgcc 180
ttgttcatcc cccattttta cctgactttg ggcagcatat ttttttcat cgggcattgg 240
aaccggaaaa cagatggaaa cggatggcag gcagaccgc aacatccgct gctcgggctt 300
tttgccgtca gtaatgtatc gatgacgctt gcttttgcgc gaatatgtgc gttggtgcat 360
tattgctttt cgggaacggg tcaagtgttt gtgtttgcgc cactgctcaa actttatgcg 420
ctgaagccgg tttattggtt cgtgttgagc gtgttgctga tggcggttgc ctatgtccac 480
cgctgcggta tagaccggca gccgcgtca acgttcggcg gctcgcagct gcgactcggc 540
gggttgacgg cagcgttgat gcaggtctcg gtactggtgc tgctgctttc agaaattgga 600
agataa 606

<210> 98
<211> 201
<212> PRT
<213> *Neisseria meningitidis*

<400> 98
Met Ile Leu Leu His Leu Asp Phe Leu Ser Ala Leu Leu Tyr Ala Ala
1 5 10 15

Val Phe Leu Phe Leu Ile Phe Arg Ala Gly Met Leu Gln Trp Phe Trp
20 25 30

Ala Ser Ile Met Leu Trp Leu Gly Ile Ser Val Leu Gly Ala Lys Leu
35 40 45

Met Pro Gly Ile Trp Gly Met Thr Arg Ala Ala Pro Leu Phe Ile Pro
50 55 60

His Phe Tyr Leu Thr Leu Gly Ser Ile Phe Phe Phe Ile Gly His Trp
65 70 75 80

Asn Arg Lys Thr Asp Gly Asn Gly Trp Gln Ala Asp Pro Glu His Pro
85 90 95

Leu Leu Gly Leu Phe Ala Val Ser Asn Val Ser Met Thr Leu Ala Phe
100 105 110

Val Gly Ile Cys Ala Leu Val His Tyr Cys Phe Ser Gly Thr Val Gln
115 120 125

Val Phe Val Phe Ala Ala Leu Leu Lys Leu Tyr Ala Leu Lys Pro Val
130 135 140

Tyr Trp Phe Val Leu Gln Phe Val Leu Met Ala Val Ala Tyr Val His
145 150 155 160

Arg Cys Gly Ile Asp Arg Gln Pro Pro Ser Thr Phe Gly Gly Ser Gln
165 170 175

Leu Arg Leu Gly Gly Leu Thr Ala Ala Leu Met Gln Val Ser Val Leu
180 185 190

Val Leu Leu Leu Ser Glu Ile Gly Arg
195 200

<210> 99
<211> 606
<212> DNA
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (373)..(373)
<223> N= Unknown

<220>
<221> misc_feature
<222> (522)..(522)
<223> N= Unknown

<220>
<221> misc_feature
<222> (565)..(565)
<223> N= Unknown

<400> 99
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ctgatattcc ggcaggaat gttgcaatgg ttttgggcga gtattatgct gtggctgggc 120
atatcggttt tgggggcaaa gctgatgcc ggcatatggg gaatgaccgc cgccgcgccc 180
ttgttcatcc cccattttta cctgactttg ggcagcatat ttttttcat cgggcattgg 240

aaccggaaaa	cggatggaaa	cggatggcag	gcagaccccg	aacatcctct	gctcgggctg	300
tttgccgtca	gtaatgtatc	gatgacgctt	gcttttgctg	gaatatgtgc	gttgggtgat	360
tattgctttt	cgngaacggg	tcaagtgttt	gtgtttgcgg	cactgctcaa	actttatgcg	420
ctgaagccgg	tttattgggt	cgtgttgtag	tttgtgctga	tggcgggtgc	ctatgtccac	480
cgctgcggta	tagaccggca	gccgccgtca	acgttcggcg	gntcgcagct	gcgactcggc	540
gggttgacgg	cagcgttgat	gcagntctcg	gtactgggtg	tgctgctttc	agaaattgga	600
agataa						606

<210> 100
 <211> 201
 <212> PRT
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature
 <222> (125)..(125)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (189)..(189)
 <223> N= Unknown

<400> 100
 Met Ile Leu Leu His Leu Asp Phe Leu Ser Ala Leu Leu Tyr Ala Ala
 1 5 10 15
 Val Phe Leu Phe Leu Ile Phe Arg Ala Gly Met Leu Gln Trp Phe Trp
 20 25 30
 Ala Ser Ile Met Leu Trp Leu Gly Ile Ser Val Leu Gly Ala Lys Leu
 35 40 45
 Met Pro Gly Ile Trp Gly Met Thr Arg Ala Ala Pro Leu Phe Ile Pro
 50 55 60
 His Phe Tyr Leu Thr Leu Gly Ser Ile Phe Phe Phe Ile Gly His Trp
 65 70 75 80
 Asn Arg Lys Thr Asp Gly Asn Gly Trp Gln Ala Asp Pro Glu His Pro
 85 90 95
 Leu Leu Gly Leu Phe Ala Val Ser Asn Val Ser Met Thr Leu Ala Phe
 100 105 110
 Val Gly Ile Cys Ala Leu Val His Tyr Cys Phe Ser Xaa Thr Val Gln
 115 120 125
 Val Phe Val Phe Ala Ala Leu Leu Lys Leu Tyr Ala Leu Lys Pro Val
 130 135 140
 Tyr Trp Phe Val Leu Gln Phe Val Leu Met Ala Val Ala Tyr Val His
 145 150 155 160
 Arg Cys Gly Ile Asp Arg Gln Pro Pro Ser Thr Phe Gly Gly Ser Gln
 165 170 175

Leu Arg Leu Gly Gly Leu Thr Ala Ala Leu Met Gln Xaa Ser Val Leu
180 185 190

Val Leu Leu Leu Ser Glu Ile Gly Arg
195 200

<210> 101
<211> 606
<212> DNA
<213> Neisseria gonorrhoeae

<220>
<221> misc_feature
<222> (125)..(125)
<223> N= Unknown

<220>
<221> misc_feature
<222> (189)..(189)
<223> N= Unknown

<400> 101

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atctcggttt taggggtaaa gctgatgccg gggatgtggg gaatgaccog cgccgcgcct 180
ttgttcatcc cccattttta cctgactttg ggcagcatat ttttttcat cgggtattgg 240
aaccggaaaa cagatggaaa cggatggcag gcagaccccg aacatccgct gctcgggctt 300
tttgccgtca gtaatgtatc gatgacgctt gcttttgtcg gaatatgtgc gttggtgcat 360
tattgctttt cggaacgggt tcaagtgttt gtgtttgcgg cattgctcaa actttatgcg 420
ctgaagccgg tttattgggt cgtgttgacg tttgtattga tggcggttgc ctatgtccac 480
cgctgcggta tagaccggca gccgccgtca acgttcggcg gttcgcagct gcgactcggc 540
gtgttgccgg cgatgttgat gcaggttgcg gtaacggcga tgctgcttgc cgaaatcggc 600
agatga 606

<210> 102
<211> 201
<212> PRT
<213> Neisseria meningitidis

<400> 102

Met Ile Leu Leu His Leu Asp Phe Leu Ser Ala Leu Leu Tyr Ala Ala
1 5 10 15

Val Phe Leu Phe Leu Ile Phe Arg Ala Gly Met Leu Gln Trp Phe Trp
20 25 30

Ala Ser Ile Ala Leu Trp Leu Gly Ile Ser Val Leu Gly Val Lys Leu
35 40 45

Met Pro Gly Met Trp Gly Met Thr Arg Ala Ala Pro Leu Phe Ile Pro
50 55 60

His Phe Tyr Leu Thr Leu Gly Ser Ile Phe Phe Phe Ile Gly Tyr Trp
65 70 75 80

Asn Arg Lys Thr Asp Gly Asn Gly Trp Gln Ala Asp Pro Glu His Pro
 85 90 95
 Leu Leu Gly Leu Phe Ala Val Ser Asn Val Ser Met Thr Leu Ala Phe
 100 105 110
 Val Gly Ile Cys Ala Leu Val His Tyr Cys Phe Ser Gly Thr Val Gln
 115 120 125
 Val Phe Val Phe Ala Ala Leu Leu Lys Leu Tyr Ala Leu Lys Pro Val
 130 135 140
 Tyr Trp Phe Val Leu Gln Phe Val Leu Met Ala Val Ala Tyr Val His
 145 150 155 160
 Arg Cys Gly Ile Asp Arg Gln Pro Pro Ser Thr Phe Gly Gly Ser Gln
 165 170 175
 Leu Arg Leu Gly Val Leu Ala Ala Met Leu Met Gln Val Ala Val Thr
 180 185 190
 Ala Met Leu Leu Ala Glu Ile Gly Arg
 195 200

<210> 103
 <211> 308
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (30)..(30)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (161)..(161)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (163)..(163)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (177)..(177)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (306)..(306)
 <223> N= Unknown

<400> 103

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tttacgcgcg cctccatcgt ctggcagcta ggcgaaccca agctcgccat gcccttcgta      120
ctcggcatca tcgcccggcg ccttgtcgat ttggacaacc ncntgaccgg acggctnaaa      180
aacatcatca ccaccgtcgc cctgttcacc ctctcctcgc tcacggcaca aagcaccctc      240
ggcacagggc tgcccttcat cctcgccatg accctgatga cttegtttca ccattttagg      300
cgcggnccg                                     308

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<210> 104
<211> 103
<212> PRT
<213> Neisseria meningitidis

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<220>
<221> misc_feature
<222> (54)..(55)
<223> Xaa= any amino acid

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<220>
<221> misc_feature
<222> (95)..(96)
<223> Xaa= any amino acid

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<220>
<221> misc_feature
<222> (103)..(103)

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<223> Xaa= any amino acid

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<400> 104
Met Lys Thr Pro Leu Leu Lys Pro Leu Leu Ile Thr Ser Leu Pro Val
1          5          10          15

Phe Ala Ser Val Phe Thr Ala Ala Ser Ile Val Trp Gln Leu Gly Glu
20          25          30

Pro Lys Leu Ala Met Pro Phe Val Leu Gly Ile Ile Ala Gly Gly Leu
35          40          45

Val Asp Leu Asp Asn Xaa Xaa Thr Gly Arg Leu Lys Asn Ile Ile Thr
50          55          60

Thr Val Ala Leu Phe Thr Leu Ser Ser Leu Thr Ala Gln Ser Thr Leu
65          70          75          80

Gly Thr Gly Leu Pro Phe Ile Leu Ala Met Thr Leu Met Thr Xaa Xaa
85          90          95

Phe Thr Ile Leu Gly Ala Xaa
100

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<210> 105
<211> 2151
<212> DNA
<213> Neisseria meningitidis

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<400> 105

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atgaaaaccc	cactcctcaa	gcctctgctc	attacctcgc	ttcccgtttt	cgccagtgtt	60
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ctcggcatca	tgcgcggcgg	ccttgtcgat	ttggacaacc	gcctgaccgg	acggctgaaa	180
aacatcatca	ccaccgtcgc	cctgttcacc	ctctcctcgc	tcacggcaca	aagcaccctc	240
ggcacagggc	tgcccttcat	cctcgccatg	accctgatga	ccttcggctt	caccatttta	300
ggcgcggtcg	ggctcaaata	ccgcaccttc	gccttcgggtg	cactcgccgt	cgccacctac	360
accacactta	cctacacccc	cgaaacctac	tggctgacca	accccttcat	gattttatgc	420
ggcaccgtag	tgtacagcac	cgccatcctc	ctgttcacaa	tgtcctgcc	ccaccgcccc	480
gtccaagaaa	gcgtcgccaa	cgccatcgac	gcactcggcg	gctacctcga	agccaaagcc	540
gactttcttcg	accccgatga	ggcagcctgg	ataggcaacc	gccacatcga	cctcgccatg	600
agcaacaccg	gcgtcatcac	cgcttcaac	caatgcctgt	ccgcccgtgt	ttaccgcctt	660
cgcggaacac	accgccaccc	gcgcaccgcc	aaaatgctgc	gttactactt	tgcgcgcccc	720
gacatacacg	aacgcatacag	ctccgcccac	gtcgattatc	aggaaatgtc	cgaaaaattc	780
aaaaacaccc	acatcatctt	ccgcataccac	cgctgctcgc	aaatgcaggg	acaagcctgc	840
cgcaacaccc	cccaagccct	gcgcgcaagc	aaagactacg	tttacagcaa	acgcctcggc	900
cgcgccatcg	aaggctgccc	ccaatcgctg	cgctcctttt	cagacagcaa	cgacagtccc	960
gacatccgcc	acctgcgcgc	ccttctcgac	aacctcggca	gcgtcgacca	gcagttccgc	1020
caactccagc	acaacggcct	gcaggcagaa	aacgaccgca	tgggcgacac	ccgcataccc	1080
gccctcgaaa	ccagcagcct	caaaaacacc	tggcaggcaa	tccgtccgca	gctaaacctc	1140
gaatcaggcg	tattccgcca	tgcgctccgc	ctgtccctcg	tcggtgcgc	cgctgcacc	1200
atcgtcgaag	ccctcaacct	caacctcggc	tactggatac	tactgaccgc	ccttttcgtc	1260
tgccaaccca	actacaccgc	caccaaagc	cgctccgcc	agcgcatcgc	cggcaccgta	1320
ctcggcgtaa	tgcgtcggtc	gctcgteccc	tacttcaccc	cgtctgtcga	aaccaaactc	1380
tggattgtca	tgcgcagtag	cacctctttt	ttcatgaccc	gcacctacaa	atacagtttc	1440
tccacctttc	tcattaccat	tcaagccctg	accagcctct	ccctcgcagg	tttggacgta	1500
tacgcgcgca	tgcgcgtacg	catcatcgac	accattatcg	gcgcatacct	tgcctgggcg	1560

gcagtcagct	acctgtggcc	agactggaaa	tacctcacgc	tcgaacgcac	cgccgccctt	1620
gccgtatgca	gcaacggtgc	ctatctcgaa	aaaatcaccg	aacgcctcaa	aagcggcgaa	1680
accggcgacg	acgtcgaata	ccgcgccacc	cgccgcgcgc	cccacgaaca	caccgccgcc	1740
ctcagcagca	ccctttccga	catgagcagc	gaacccgcaa	aattcgccga	cagcctgcaa	1800
cccggcttta	ccctgctcaa	aaccggctac	gccctgaccg	gctacatctc	cgccctcggc	1860
gcataccgca	gcgaaatgca	cgaagaatgc	agccccgact	ttaccgcaca	gttcacctc	1920
gccgccgaac	acaccgcccc	catcttccaa	cacctgcccg	aaaccgaacc	cgacgacttt	1980
cagacagcac	tggatacact	gcgcggcgaa	ctcgacaccc	tccgcaccca	cagcagcgga	2040
acacaaagcc	acatcctcct	ccaacagctc	caactcatcg	cccgacagct	cgaaccttac	2100
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 <211> 716
 <212> PRT
 <213> *Neisseria meningitidis*

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 35 40 45
 Val Asp Leu Asp Asn Arg Leu Thr Gly Arg Leu Lys Asn Ile Ile Thr
 50 55 60

Thr Val Ala Leu Phe Thr Leu Ser Ser Leu Thr Ala Gln Ser Thr Leu
 65 70 75 80
 Gly Thr Gly Leu Pro Phe Ile Leu Ala Met Thr Leu Met Thr Phe Gly
 85 90 95
 Phe Thr Ile Leu Gly Ala Val Gly Leu Lys Tyr Arg Thr Phe Ala Phe
 100 105 110
 Gly Ala Leu Ala Val Ala Thr Tyr Thr Thr Leu Thr Tyr Thr Pro Glu
 115 120 125
 Thr Tyr Trp Leu Thr Asn Pro Phe Met Ile Leu Cys Gly Thr Val Leu
 130 135 140
 Tyr Ser Thr Ala Ile Leu Leu Phe Gln Ile Val Leu Pro His Arg Pro
 145 150 155 160
 Val Gln Glu Ser Val Ala Asn Ala Tyr Asp Ala Leu Gly Gly Tyr Leu
 165 170 175
 Glu Ala Lys Ala Asp Phe Phe Asp Pro Asp Glu Ala Ala Trp Ile Gly
 180 185 190
 Asn Arg His Ile Asp Leu Ala Met Ser Asn Thr Gly Val Ile Thr Ala
 195 200 205

 Phe Asn Gln Cys Arg Ser Ala Leu Phe Tyr Arg Leu Arg Gly Lys His
 210 215 220
 Arg His Pro Arg Thr Ala Lys Met Leu Arg Tyr Tyr Phe Ala Ala Gln
 225 230 235 240
 Asp Ile His Glu Arg Ile Ser Ser Ala His Val Asp Tyr Gln Glu Met
 245 250 255
 Ser Glu Lys Phe Lys Asn Thr Asp Ile Ile Phe Arg Ile His Arg Leu
 260 265 270
 Leu Glu Met Gln Gly Gln Ala Cys Arg Asn Thr Ala Gln Ala Leu Arg
 275 280 285
 Ala Ser Lys Asp Tyr Val Tyr Ser Lys Arg Leu Gly Arg Ala Ile Glu
 290 295 300
 Gly Cys Arg Gln Ser Leu Arg Leu Leu Ser Asp Ser Asn Asp Ser Pro
 305 310 315 320
 Asp Ile Arg His Leu Arg Arg Leu Leu Asp Asn Leu Gly Ser Val Asp
 325 330 335
 Gln Gln Phe Arg Gln Leu Gln His Asn Gly Leu Gln Ala Glu Asn Asp
 340 345 350
 Arg Met Gly Asp Thr Arg Ile Ala Ala Leu Glu Thr Ser Ser Leu Lys

355	360	365
Asn Thr Trp Gln Ala Ile Arg Pro Gln Leu Asn Leu Glu Ser Gly Val		
370	375	380
Phe Arg His Ala Val Arg Leu Ser Leu Val Val Ala Ala Ala Cys Thr		
385	390	395 400
Ile Val Glu Ala Leu Asn Leu Asn Leu Gly Tyr Trp Ile Leu Leu Thr		
405	410	415
Ala Leu Phe Val Cys Gln Pro Asn Tyr Thr Ala Thr Lys Ser Arg Val		
420	425	430
Arg Gln Arg Ile Ala Gly Thr Val Leu Gly Val Ile Val Gly Ser Leu		
435	440	445
Val Pro Tyr Phe Thr Pro Ser Val Glu Thr Lys Leu Trp Ile Val Ile		
450	455	460
Ala Ser Thr Thr Leu Phe Phe Met Thr Arg Thr Tyr Lys Tyr Ser Phe		
465	470	475 480
Ser Thr Phe Phe Ile Thr Ile Gln Ala Leu Thr Ser Leu Ser Leu Ala		
485	490	495
Gly Leu Asp Val Tyr Ala Ala Met Pro Val Arg Ile Ile Asp Thr Ile		
500	505	510
Ile Gly Ala Ser Leu Ala Trp Ala Ala Val Ser Tyr Leu Trp Pro Asp		
515	520	525
Trp Lys Tyr Leu Thr Leu Glu Arg Thr Ala Ala Leu Ala Val Cys Ser		
530	535	540
Asn Gly Ala Tyr Leu Glu Lys Ile Thr Glu Arg Leu Lys Ser Gly Glu		
545	550	555 560
Thr Gly Asp Asp Val Glu Tyr Arg Ala Thr Arg Arg Arg Ala His Glu		
565	570	575
His Thr Ala Ala Leu Ser Ser Thr Leu Ser Asp Met Ser Ser Glu Pro		
580	585	590
Ala Lys Phe Ala Asp Ser Leu Gln Pro Gly Phe Thr Leu Leu Lys Thr		
595	600	605
Gly Tyr Ala Leu Thr Gly Tyr Ile Ser Ala Leu Gly Ala Tyr Arg Ser		
610	615	620
Glu Met His Glu Glu Cys Ser Pro Asp Phe Thr Ala Gln Phe His Leu		
625	630	635 640
Ala Ala Glu His Thr Ala His Ile Phe Gln His Leu Pro Glu Thr Glu		
645	650	655

Pro Asp Asp Phe Gln Thr Ala Leu Asp Thr Leu Arg Gly Glu Leu Asp
660 665 670

Thr Leu Arg Thr His Ser Ser Gly Thr Gln Ser His Ile Leu Leu Gln
675 680 685

Gln Leu Gln Leu Ile Ala Arg Gln Leu Glu Pro Tyr Tyr Arg Ala Tyr
690 695 700

Arg Gln Ile Pro His Arg Gln Pro Gln Asn Ala Ala
705 710 715

<210> 107
<211> 2151
<212> DNA
<213> Neisseria meningitidis

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ctcggcatca tcgctggcgg cctggtcgat ttggacaacc gcctgaccgg acggctgaaa 180
aacatcatcg ccaccgtcgc cctgttcacc ctctcctcac ttgtcgcgca aagcaccctc 240
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ggcgcggtcg ggctgaaata cgcaccttc gccttcggcg cactcgccgt cgccacctac 360
accacactta cctacacccc cgaaacctac tggtgacca acccctttat gattctgtgc 420
ggaaccgtac tgtacagcac cgccatcatc ctgttcctaaa tcatcctgcc ccaccgcccc 480
gttcaagaaa acgtcgccaa cgcctacgaa gcactcggca gctacctcga agccaaagcc 540
gactttttcg atcccgacga agccgaatgg ataggcaacc gccacatcga cctcgccatg 600
agcaacaccg gcgtcatcac cgccttcaac caatgccgtt ccgccctggt ttaccgcctt 660

cgcgggcaaac accgccaccc gcgcaccgcc aaaatgctgc gctactactt cgccgcccac 720
gacatacacg aacgcacag ctccgcccac gtcgactacc aagagatgtc cgaaaaattc 780
aaaaacaccg acatcatctt ccgcacccac cgctgctcg aaatgcaggg acaagcctgc 840
cgcaacaccg cccaagccct gcgcgcaagc aaagactact ttacagcaa acgcctcggc 900
cgcccatcgc aaggctgccc ccaatcgctg cgcctcctt cagacagcaa cgacaatccc 960
gacatccgac actgcgcgc cttctcgac aacctcggca gcgtcgacca gcagttccgc 1020
caactccagc acaacggcct gcaggcagaa aacgaccgca tgggcgacac ccgcacgcgc 1080
gccctcgaaa ccggcagcct caaaaacacc tggcaggcaa tccgtccgca gctaaacctc 1140
gaatcaggcg tattccgcca tgccgtccgc ctgtcccttg tcgttgccgc cgctgcacc 1200
atcgtcgaag ccctcaacct caacctcggc tactggatac tactgaccgc ccttttcgtc 1260
tgccaaccca actacaccgc caccaaaagc cgctccgcc agcgcacgc cggcaccgta 1320
ctcggcgtaa tcgtcggtc gctcgtcccc tactttaccc cctccgtcga aaccaaactc 1380
tggtatcgta tcgccagtac caccctcttt ttcatgacct gcacctaaa atacagcttc 1440
tcgacatttt tcatcaccat tcaagccctg accagcctct cctcgcagg gttggacgta 1500
tacgcccga tgcccgtacg catcatcgac accattatcg gcgcacccct tgccctgggcg 1560
gcagtcagct acctgtggcc agactggaaa tacctcacgc tcgaacgcac cgccgccctt 1620
gccgtatgca gcaacggcgc ctatctcgaa aaaatcaccg aacgcctcaa aagcggcgaa 1680
accggcgacg acgtcgaata ccgcgccacc cgccgccgcg cccacgaaca caccgccgcc 1740
ctcagcagca ccctttccga catgagcagc gaacccgcaa aattcgccga cagcctgcaa 1800
cccggcttta ccctgctcaa aaccggctac gccctgaccg gctacatctc cgccctcggc 1860
gcataccgca gcgaaatgca cgaagaatgc agccccgact ttaccgcaca gttccacctc 1920
gccgccgaac acaccgccc catcttccaa cacctgcccc aaaccgaacc cgacgacttt 1980
cagacagcac tggatacact gcgcggcgaa ctcgacaccc tccgcaccca cagcagcgga 2040
acacaaagcc acatcctcct ccaacagctc caactcatcg cccggcagct cgaaccctac 2100
taccgcgcct accgacaaat tccgcacagg cagcccccac acgcagcctg a 2151

<210> 108
 <211> 716
 <212> PRT
 <213> Neisseria meningitidis

<400> 108

Met	Lys	Thr	Pro	Pro	Leu	Lys	Pro	Leu	Leu	Ile	Thr	Ser	Leu	Pro	Val
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			20					25					30		
Pro	Lys	Leu	Ala	Met	Pro	Phe	Val	Leu	Gly	Ile	Ile	Ala	Gly	Gly	Leu
		35					40					45			
Val	Asp	Leu	Asp	Asn	Arg	Leu	Thr	Gly	Arg	Leu	Lys	Asn	Ile	Ile	Ala
	50					55					60				
Thr	Val	Ala	Leu	Phe	Thr	Leu	Ser	Ser	Leu	Val	Ala	Gln	Ser	Thr	Leu
65					70					75					80
Gly	Thr	Gly	Leu	Pro	Phe	Ile	Leu	Ala	Met	Thr	Leu	Met	Thr	Phe	Gly
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Phe	Thr	Ile	Met	Gly	Ala	Val	Gly	Leu	Lys	Tyr	Arg	Thr	Phe	Ala	Phe
			100					105					110		
Gly	Ala	Leu	Ala	Val	Ala	Thr	Tyr	Thr	Thr	Leu	Thr	Tyr	Thr	Pro	Glu
		115					120					125			
Thr	Tyr	Trp	Leu	Thr	Asn	Pro	Phe	Met	Ile	Leu	Cys	Gly	Thr	Val	Leu
	130					135					140				
Tyr	Ser	Thr	Ala	Ile	Ile	Leu	Phe	Gln	Ile	Ile	Leu	Pro	His	Arg	Pro
145					150					155					160
Val	Gln	Glu	Asn	Val	Ala	Asn	Ala	Tyr	Glu	Ala	Leu	Gly	Ser	Tyr	Leu
				165					170					175	
Glu	Ala	Lys	Ala	Asp	Phe	Phe	Asp	Pro	Asp	Glu	Ala	Glu	Trp	Ile	Gly
			180					185					190		
Asn	Arg	His	Ile	Asp	Leu	Ala	Met	Ser	Asn	Thr	Gly	Val	Ile	Thr	Ala
		195					200					205			
Phe	Asn	Gln	Cys	Arg	Ser	Ala	Leu	Phe	Tyr	Arg	Leu	Arg	Gly	Lys	His
	210					215					220				
Arg	His	Pro	Arg	Thr	Ala	Lys	Met	Leu	Arg	Tyr	Tyr	Phe	Ala	Ala	Gln
225					230					235					240
Asp	Ile	His	Glu	Arg	Ile	Ser	Ser	Ala	His	Val	Asp	Tyr	Gln	Glu	Met
				245					250					255	
Ser	Glu	Lys	Phe	Lys	Asn	Thr	Asp	Ile	Ile	Phe	Arg	Ile	His	Arg	Leu

260					265					270					
Leu	Glu	Met	Gln	Gly	Gln	Ala	Cys	Arg	Asn	Thr	Ala	Gln	Ala	Leu	Arg
		275					280					285			
Ala	Ser	Lys	Asp	Tyr	Val	Tyr	Ser	Lys	Arg	Leu	Gly	Arg	Ala	Ile	Glu
		290					295					300			
Gly	Cys	Arg	Gln	Ser	Leu	Arg	Leu	Leu	Ser	Asp	Ser	Asn	Asp	Asn	Pro
							310					315			320
Asp	Ile	Arg	His	Leu	Arg	Arg	Leu	Leu	Asp	Asn	Leu	Gly	Ser	Val	Asp
				325					330					335	
Gln	Gln	Phe	Arg	Gln	Leu	Gln	His	Asn	Gly	Leu	Gln	Ala	Glu	Asn	Asp
				340					345					350	
Arg	Met	Gly	Asp	Thr	Arg	Ile	Ala	Ala	Leu	Glu	Thr	Gly	Ser	Leu	Lys
				355					360					365	
Asn	Thr	Trp	Gln	Ala	Ile	Arg	Pro	Gln	Leu	Asn	Leu	Glu	Ser	Gly	Val
									375					380	
Phe	Arg	His	Ala	Val	Arg	Leu	Ser	Leu	Val	Val	Ala	Ala	Ala	Cys	Thr
									390					395	400
Ile	Val	Glu	Ala	Leu	Asn	Leu	Asn	Leu	Gly	Tyr	Trp	Ile	Leu	Leu	Thr
				405					410					415	
Ala	Leu	Phe	Val	Cys	Gln	Pro	Asn	Tyr	Thr	Ala	Thr	Lys	Ser	Arg	Val
				420					425					430	
Arg	Gln	Arg	Ile	Ala	Gly	Thr	Val	Leu	Gly	Val	Ile	Val	Gly	Ser	Leu
				435					440					445	
Val	Pro	Tyr	Phe	Thr	Pro	Ser	Val	Glu	Thr	Lys	Leu	Trp	Ile	Val	Ile
									455					460	
Ala	Ser	Thr	Thr	Leu	Phe	Phe	Met	Thr	Arg	Thr	Tyr	Lys	Tyr	Ser	Phe
									470					475	480
Ser	Thr	Phe	Phe	Ile	Thr	Ile	Gln	Ala	Leu	Thr	Ser	Leu	Ser	Leu	Ala
				485					490					495	
Gly	Leu	Asp	Val	Tyr	Ala	Ala	Met	Pro	Val	Arg	Ile	Ile	Asp	Thr	Ile
				500					505					510	
Ile	Gly	Ala	Ser	Leu	Ala	Trp	Ala	Ala	Val	Ser	Tyr	Leu	Trp	Pro	Asp
				515					520					525	
Trp	Lys	Tyr	Leu	Thr	Leu	Glu	Arg	Thr	Ala	Ala	Leu	Ala	Val	Cys	Ser
									535					540	
Asn	Gly	Ala	Tyr	Leu	Glu	Lys	Ile	Thr	Glu	Arg	Leu	Lys	Ser	Gly	Glu
									550					555	560

Thr Gly Asp Asp Val Glu Tyr Arg Ala Thr Arg Arg Arg Ala His Glu
 565 570 575
 His Thr Ala Ala Leu Ser Ser Thr Leu Ser Asp Met Ser Ser Glu Pro
 580 585 590
 Ala Lys Phe Ala Asp Ser Leu Gln Pro Gly Phe Thr Leu Leu Lys Thr
 595 600 605
 Gly Tyr Ala Leu Thr Gly Tyr Ile Ser Ala Leu Gly Ala Tyr Arg Ser
 610 615 620
 Glu Met His Glu Glu Cys Ser Pro Asp Phe Thr Ala Gln Phe His Leu
 625 630 635 640
 Ala Ala Glu His Thr Ala His Ile Phe Gln His Leu Pro Glu Thr Glu
 645 650 655
 Pro Asp Asp Phe Gln Thr Ala Leu Asp Thr Leu Arg Gly Glu Leu Asp
 660 665 670
 Thr Leu Arg Thr His Ser Ser Gly Thr Gln Ser His Ile Leu Leu Gln
 675 680 685
 Gln Leu Gln Leu Ile Ala Arg Gln Leu Glu Pro Tyr Tyr Arg Ala Tyr
 690 695 700
 Arg Gln Ile Pro His Arg Gln Pro Gln Asn Ala Ala
 705 710 715

<210> 109
 <211> 8

<212> DNA
 <213> Neisseria gonorrhoeae

<220>
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 <223> N= Unknown

<400> 109
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<210> 110
 <211> 370
 <212> PRT
 <213> Neisseria meningitidis

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Phe Ala Ser Val Phe Thr Ala Ala Ser Ile Val Trp Gln Leu Gly Glu
 20 25 30

Pro Lys Leu Ala Met Pro Phe Val Leu Gly Ile Ile Ala Gly Gly Leu
 35 40 45
 Val Asp Leu Asp Asn Arg Leu Thr Gly Arg Leu Lys Asn Ile Ile Ala
 50 55 60
 Thr Val Ala Leu Phe Thr Leu Ser Ser Leu Thr Ala Gln Ser Thr Leu
 65 70 75 80
 Gly Thr Gly Leu Pro Phe Ile Leu Ala Met Thr Leu Met Thr Phe Gly
 85 90 95
 Phe Thr Ile Leu Gly Ala Val Gly Leu Lys Tyr Arg Thr Phe Ala Phe
 100 105 110
 Gly Ala Leu Ala Val Ala Thr Tyr Thr Thr Leu Thr Tyr Thr Pro Glu
 115 120 125
 Thr Tyr Trp Leu Thr Asn Pro Phe Met Ile Leu Cys Gly Thr Val Leu
 130 135 140
 Tyr Ser Thr Ala Ile Ile Leu Phe Gln Ile Ile Leu Pro His Arg Pro
 145 150 155 160
 Val Gln Glu Ser Val Ala Asn Ala Tyr Glu Ala Leu Gly Gly Tyr Leu
 165 170 175
 Glu Ala Lys Ala Asp Phe Phe Asp Pro Asp Glu Ala Ala Trp Ile Gly
 180 185 190
 Asn Arg His Ile Asp Leu Ala Met Ser Asn Thr Gly Val Ile Thr Ala
 195 200 205

 Phe Asn Gln Cys Arg Ser Ala Leu Phe Tyr Arg Leu Arg Gly Lys His
 210 215 220
 Arg His Pro Arg Thr Ala Lys Met Leu Arg Tyr Tyr Phe Ala Ala Gln
 225 230 235 240
 Asp Ile His Glu Arg Ile Ser Ser Ala His Val Asp Tyr Gln Glu Met
 245 250 255
 Ser Glu Lys Phe Lys Asn Thr Asp Ile Ile Phe Arg Ile Arg Arg Leu
 260 265 270
 Leu Glu Met Gln Gly Gln Ala Cys Arg Asn Thr Ala Gln Ala Ile Arg
 275 280 285
 Ser Gly Lys Asp Tyr Val Tyr Ser Lys Arg Leu Gly Arg Ala Ile Glu
 290 295 300
 Gly Cys Arg Gln Ser Leu Arg Leu Leu Ser Asp Gly Asn Asp Ser Pro
 305 310 315 320
 Asp Ile Arg His Leu Ser Arg Leu Leu Asp Asn Leu Gly Ser Val Asp

325

330

335

Gln Gln Phe Arg Gln Leu Arg His Ser Asp Ser Pro Ala Glu Asn Asp
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Arg Met Gly Asp Thr Arg Ile Ala Ala Leu Glu Thr Gly Ser Phe Lys
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Asn Thr
 370

<210> 111
 <211> 2151
 <212> DNA
 <213> *Neisseria gonorrhoeae*

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 aacatcatcg ccaccgtcgc cctgtttacc ctctcctcgc tcacggcgca aagcaccctc 240
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 accacgctta cctacacccc cgaaacctac tggctgacca accccttcat gattttatgc 420
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 gacttcttcg accccgatga ggagcctgg ataggcaacc gccacatcga cctcgccatg 600
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 aaaaacaccg acatcatctt ccgcatccgc cgctgctcg aaatgcaggg gcaggcgtgc 840
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<210> 112

<211> 716
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 112

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20          25          30

Pro Lys Leu Ala Met Pro Phe Val Leu Gly Ile Ile Ala Gly Gly Leu
35          40          45

Val Asp Leu Asp Asn Arg Leu Thr Gly Arg Leu Lys Asn Ile Ile Ala
50          55          60

Thr Val Ala Leu Phe Thr Leu Ser Ser Leu Thr Ala Gln Ser Thr Leu
65          70          75          80

Gly Thr Gly Leu Pro Phe Ile Leu Ala Met Thr Leu Met Thr Phe Gly
85          90          95

Phe Thr Ile Leu Gly Ala Val Gly Leu Lys Tyr Arg Thr Phe Ala Phe
100         105         110

Gly Ala Leu Ala Val Ala Thr Tyr Thr Thr Leu Thr Tyr Thr Pro Glu
115         120         125

Thr Tyr Trp Leu Thr Asn Pro Phe Met Ile Leu Cys Gly Thr Val Leu
130         135         140

Tyr Ser Thr Ala Ile Ile Leu Phe Gln Ile Ile Leu Pro His Arg Pro
145         150         155         160

Val Gln Glu Ser Val Ala Asn Ala Tyr Glu Ala Leu Gly Gly Tyr Leu
165         170         175

Glu Ala Lys Ala Asp Phe Phe Asp Pro Asp Glu Ala Ala Trp Ile Gly
180         185         190

Asn Arg His Ile Asp Leu Ala Met Ser Asn Thr Gly Val Ile Thr Ala
195         200         205

Phe Asn Gln Cys Arg Ser Ala Leu Phe Tyr Arg Leu Arg Gly Lys His
210         215         220

Arg His Pro Arg Thr Ala Lys Met Leu Arg Tyr Tyr Phe Ala Ala Gln
225         230         235         240

Asp Ile His Glu Arg Ile Ser Ser Ala His Val Asp Tyr Gln Glu Met
245         250         255

Ser Glu Lys Phe Lys Asn Thr Asp Ile Ile Phe Arg Ile Arg Arg Leu
260         265         270

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Leu Glu Met Gln Gly Gln Ala Cys Arg Asn Thr Ala Gln Ala Ile Arg
 275 280 285
 Ser Gly Lys Asp Tyr Val Tyr Ser Lys Arg Leu Gly Arg Ala Ile Glu
 290 295 300
 Gly Cys Arg Gln Ser Leu Arg Leu Leu Ser Asp Gly Asn Asp Ser Pro
 305 310 315 320
 Asp Ile Arg His Leu Ser Arg Leu Leu Asp Asn Leu Gly Ser Val Asp
 325 330 335
 Gln Gln Phe Arg Gln Leu Arg His Ser Asp Ser Pro Ala Glu Asn Asp
 340 345 350
 Arg Met Gly Asp Thr Arg Ile Ala Ala Leu Glu Thr Gly Ser Phe Lys
 355 360 365
 Asn Thr Trp Gln Ala Ile Arg Pro Gln Leu Asn Leu Glu Ser Cys Val
 370 375 380
 Phe Arg His Ala Val Arg Leu Ser Leu Val Val Ala Ala Ala Cys Thr
 385 390 395 400
 Ile Val Glu Ala Leu Asn Leu Asn Leu Gly Tyr Trp Ile Leu Leu Thr
 405 410 415
 Ala Leu Phe Val Cys Gln Pro Asn Tyr Thr Ala Thr Lys Ser Arg Val
 420 425 430
 Tyr Gln Arg Ile Ala Gly Thr Val Leu Gly Val Ile Val Gly Ser Leu
 435 440 445
 Val Pro Tyr Phe Thr Pro Ser Val Glu Thr Lys Leu Trp Ile Val Ile
 450 455 460
 Ala Gly Thr Thr Leu Phe Phe Met Thr Arg Thr Tyr Lys Tyr Ser Phe
 465 470 475 480
 Ser Thr Phe Phe Ile Thr Ile Gln Ala Leu Thr Ser Leu Ser Leu Ala
 485 490 495
 Gly Leu Asp Val Tyr Ala Ala Met Pro Val Arg Ile Ile Asp Thr Ile
 500 505 510
 Ile Gly Ala Ser Leu Ala Trp Ala Ala Val Ser Tyr Leu Trp Pro Asp
 515 520 525
 Trp Lys Tyr Leu Thr Leu Glu Arg Thr Ala Ala Leu Ala Val Cys Ser
 530 535 540
 Ser Gly Thr Tyr Leu Gln Lys Ile Ala Glu Arg Leu Lys Thr Gly Glu
 545 550 555 560
 Thr Gly Asp Asp Ile Glu Tyr Arg Ile Thr Arg Arg Arg Ala His Glu

565	570	575
His Thr Ala Ala Leu Ser Ser Thr Leu Ser Asp Met Ser Ser Glu Pro		
580	585	590
Ala Lys Phe Ala Asp Ser Leu Gln Pro Gly Phe Thr Leu Leu Lys Thr		
595	600	605
Gly Tyr Ala Leu Thr Gly Tyr Ile Ser Ala Leu Gly Ala Tyr Arg Ser		
610	615	620
Glu Met His Glu Glu Cys Ser Pro Asp Phe Thr Ala Gln Phe His Leu		
625	630	635
Ala Ala Glu His Thr Ala His Ile Phe Gln His Leu Pro Asp Met Gly		
645	650	655
Pro Asp Asp Phe Gln Thr Ala Leu Asp Thr Leu Arg Gly Glu Leu Gly		
660	665	670
Thr Leu Arg Thr Arg Ser Ser Gly Thr Gln Ser His Ile Leu Leu Gln		
675	680	685
Gln Leu Gln Leu Ile Ala Arg Gln Leu Glu Pro Tyr Tyr Arg Ala Tyr		
690	695	700
Arg Gln Ile Pro His Arg Gln Pro Gln Asn Ala Ala		
705	710	715

<210> 113
 <211> 1363
 <212> DNA
 <213> Neisseria meningitidis

<400> 113	
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ggatttgtgc gcgatacggc cattgcgcgg gcattcggcg cgggtatggc gacggatgcg	120
ttttttgtcg cgttcaaact gccaacactg cttcgccgcg tgtttgcgga gggggcgctt	180
gccaagcgt ttgtgccgat tttggcgga tacaaggaaa cgcgttcaaa agaggcggcg	240
aagcctttat ccgccatgtg gcggggatgc tgcggtttgt actggttatc gttaccgcgc	300
tgggcatact tgccgcgcct tgggtgattt atgtttccgc acccgagttt tgccaagat	360
gccgacaaat ttcagctctc catcgatttg ctgcggatta cgtttcctta tatattattg	420
atttccctgt cttcatttgt cggctcggta ctcaattctt atcataagtt cggcattccg	480
gcgtttacgc cacgtttctg aacgtgtcgt ttatcgtatt cgcgctgttt ttcgtgccgt	540
atttcgatcc gcccgttacc gcgcyggcgt gggcggctct tgcggcggc attttgcaac	600
tcgrmttcca actgccctgg ctggcgaaac tgggcttttt gaaactgccc aaactgagtt	660
tcaaagatgc ggcggtcaac cgcgtgatga aacagatggc gcctgcgatt ttgggcgtga	720
gcgtggcgca ggtttctttg gtgatcaaca cgattttcgc gtcttatctg caatcgggca	780
gcgtttcatg gatgtattac gccgaccgca tgatggagct gccagcggc gtgctggggg	840
cggcactcgg tacgattttg ctgccgactt tgcctaaaca ctcggcaaac caagatacgg	900
aacagttttc cgccctgctc gactgggggt tgcgcctgtg catgctgctg acgctgcccg	960
cggcggtcgg actggcggtg ttgtcgttcc cgctggtggc gacgctgttt atgtaccgcg	1020
watttacgct gtttgacgcg cagatgacgc aacacgcgct gattgcctat tctttcgggt	1080
taatcggctt aatcatgatt aaagtgttgg caccgcgctt ctatgcgcgg caaaacatca	1140
awamgcccgt caaaatcgcc atcttcacgc tcatctgcmc gcagttgatg aaccttgsct	1200

ttaycggccc	actrraacrc	astcggactt	tcgcttgcca	tcggtctggg	cgcggtgtatc	1260
aatgccggat	tggtgtttta	cctgttgccg	agacacggta	tttaccaacc	tggcaagggt	1320
tgggcagcgt	tcttagcaaa	aatgctgctc	tcgctcgccg	tga		1363

<210> 114
 <211> 454
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (80)..(80)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (165)..(165)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (189)..(189)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (202)..(202)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (341)..(341)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (381)..(382)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (394)..(394)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (400)..(400)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (402)..(402)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature

<222> (406)..(407)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (438)..(438)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (446)..(446)
 <223> Xaa= any amino acid

<400> 114
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 1 5 10 15
 Ser Arg Val Leu Gly Phe Val Arg Asp Thr Val Ile Ala Arg Ala Phe
 20 25 30
 Gly Ala Gly Met Ala Thr Asp Ala Phe Phe Val Ala Phe Lys Leu Pro
 35 40 45
 Asn Leu Leu Arg Arg Val Phe Ala Glu Gly Ala Phe Ala Gln Ala Phe
 50 55 60
 Val Pro Ile Leu Ala Glu Tyr Lys Glu Thr Arg Ser Lys Glu Ala Xaa
 65 70 75 80
 Glu Ala Phe Ile Arg His Val Ala Gly Met Leu Ser Phe Val Leu Val
 85 90 95
 Ile Val Thr Ala Leu Gly Ile Leu Ala Ala Pro Trp Val Ile Tyr Val
 100 105 110
 Ser Ala Pro Ser Phe Ala Gln Asp Ala Asp Lys Phe Gln Leu Ser Ile
 115 120 125
 Asp Leu Leu Arg Ile Thr Phe Pro Tyr Ile Leu Leu Ile Ser Leu Ser
 130 135 140
 Ser Phe Val Gly Ser Val Leu Asn Ser Tyr His Lys Phe Gly Ile Pro
 145 150 155 160
 Ala Phe Thr Pro Xaa Phe Leu Asn Val Ser Phe Ile Val Phe Ala Leu
 165 170 175
 Phe Phe Val Pro Tyr Phe Asp Pro Pro Val Thr Ala Xaa Ala Trp Ala
 180 185 190
 Val Phe Val Gly Gly Ile Leu Gln Leu Xaa Phe Gln Leu Pro Trp Leu
 195 200 205
 Ala Lys Leu Gly Phe Leu Lys Leu Pro Lys Leu Ser Phe Lys Asp Ala
 210 215 220

Ala Val Asn Arg Val Met Lys Gln Met Ala Pro Ala Ile Leu Gly Val
225 230 235 240

Ser Val Ala Gln Val Ser Leu Val Ile Asn Thr Ile Phe Ala Ser Tyr
245 250 255

Leu Gln Ser Gly Ser Val Ser Trp Met Tyr Tyr Ala Asp Arg Met Met
260 265 270

Glu Leu Pro Ser Gly Val Leu Gly Ala Ala Leu Gly Thr Ile Leu Leu
275 280 285

Pro Thr Leu Ser Lys His Ser Ala Asn Gln Asp Thr Glu Gln Phe Ser
290 295 300

Ala Leu Leu Asp Trp Gly Leu Arg Leu Cys Met Leu Leu Thr Leu Pro
305 310 315 320

Ala Ala Val Gly Leu Ala Val Leu Ser Phe Pro Leu Val Ala Thr Leu
325 330 335

Phe Met Tyr Arg Xaa Phe Thr Leu Phe Asp Ala Gln Met Thr Gln His
340 345 350

Ala Leu Ile Ala Tyr Ser Phe Gly Leu Ile Gly Leu Ile Met Ile Lys
355 360 365

Val Leu Ala Pro Gly Phe Tyr Ala Arg Gln Asn Ile Xaa Xaa Pro Val
370 375 380

Lys Ile Ala Ile Phe Thr Leu Ile Cys Xaa Gln Leu Met Asn Leu Xaa
385 390 395 400

Phe Xaa Gly Pro Leu Xaa Xaa Ile Gly Leu Ser Leu Ala Ile Gly Leu
405 410 415

Gly Ala Cys Ile Asn Ala Gly Leu Leu Phe Tyr Leu Leu Arg Arg His
420 425 430

Gly Ile Tyr Gln Pro Xaa Gln Gly Leu Gly Ser Val Leu Xaa Gln Lys
435 440 445

Cys Cys Ser Arg Ser Pro
450

<210> 115
<211> 1539
<212> DNA
<213> Neisseria meningitidis

<400> 115
atgaatatgc tgggagcttt ggcaaaagtc ggcagcctga cgatggtgtc gcgcgttttg 60
ggatttgtgc gcgatacggc cattgcgcgg gcattcggcg cgggtatggc gacggatgcg 120
ttttttgtcg cgttcaaact gcccaacctg cttegcgcgg tgtttgcgga gggggcgttt 180

gccaagcgt	ttgtgccgat	tttggcgga	tacaaggaaa	cgcgttcaaa	agaggcggg	240
gaggctttta	tccgccatgt	ggcggggatg	ctgtcgtttg	tactggttat	cgttaccgcg	300
ctgggcatac	ttgccgcgcc	ttgggtgatt	tatgtttccg	cacccggttt	tgccaagat	360
gccgacaaat	ttcagctctc	catcgatttg	ctgcggatta	cgtttcctta	tatattattg	420
atttcctgt	cttcatttgt	cggctcggtg	ctcaattctt	atcataagtt	cggcattccg	480
gcgtttacgc	ccacgtttct	gaacgtgtcg	tttatcgat	tgcgctggt	tttcgtgccg	540
tatttcgatc	cgcccgttac	cgcgctggcg	tgggcgggtct	ttgtcggcgg	cattttgcaa	600
ctcggcttcc	aactgccctg	gctggcgaaa	ctgggctttt	tgaaactgcc	caaactgagt	660
ttcaaagatg	cggcggtcaa	ccgcgtgatg	aaacagatgg	cgcctgcgat	tttgggctg	720
agcgtggcgc	aggtttcttt	ggtgatcaac	acgattttcg	cgtcttatct	gcaatcgggc	780
agcgtttcat	ggatgtatta	cgcgcaccgc	atgatggagc	tgcccagcgg	cgtgctgggg	840
gcggcactcg	gtacgatttt	gctgccgact	ttgtccaaac	actcggcaaa	ccaagatacg	900
gaacagtttt	ccgccctgct	cgaactgggt	ttgcgcctgt	gcatgctgct	gacgctgccg	960
gcggcggtcg	gactggcggt	gttgtcgttc	ccgctgggtg	cgacgctggt	tatgtaccgc	1020
gaatttacgc	tgtttgacgc	gcagatgacg	caacacgcgc	tgattgccta	ttctttcggt	1080
ttaatcggt	taatcatgat	taaagtgttg	gcaccgggt	tctatgcgcg	gcaaaacatc	1140
aaaacgccc	tcaaaatcgc	catcttcacg	ctcatctgca	cgcagttgat	gaaccttgcc	1200
tttatcggt	cactgaaaca	cgtcggactt	tcgcttgcca	tcggtctggg	cgcgtgtatc	1260
aatgccggat	tgttgtttta	cctgttgccg	agacacggta	tttaccaacc	tggcaagggt	1320
tgggcagcgt	tcttagcaaa	aatgctgctc	tcgctcgccg	tgatgtgcgg	cggactgtgg	1380
gcagcgcagg	cttacctgcc	gtttgaatgg	gcgcacgcgc	gcggaatgcg	gaaagcgggg	1440
cagctctgca	tcctgattgc	cgtcggcggc	ggactgtatt	tcgcatcact	ggcggtttg	1500
ggcttccgct	cgcgccattt	caaacgcgtg	gaaaactga			1539

<210> 116
 <211> 512
 <212> PRT
 <213> Neisseria meningitidis

<400> 116
 Met Asn Met Leu Gly Ala Leu Ala Lys Val Gly Ser Leu Thr Met Val
 1 5 10 15
 Ser Arg Val Leu Gly Phe Val Arg Asp Thr Val Ile Ala Arg Ala Phe
 20 25 30
 Gly Ala Gly Met Ala Thr Asp Ala Phe Phe Val Ala Phe Lys Leu Pro
 35 40 45
 Asn Leu Leu Arg Arg Val Phe Ala Glu Gly Ala Phe Ala Gln Ala Phe
 50 55 60
 Val Pro Ile Leu Ala Glu Tyr Lys Glu Thr Arg Ser Lys Glu Ala Ala
 65 70 75 80
 Glu Ala Phe Ile Arg His Val Ala Gly Met Leu Ser Phe Val Leu Val
 85 90 95
 Ile Val Thr Ala Leu Gly Ile Leu Ala Ala Pro Trp Val Ile Tyr Val
 100 105 110
 Ser Ala Pro Gly Phe Ala Gln Asp Ala Asp Lys Phe Gln Leu Ser Ile
 115 120 125
 Asp Leu Leu Arg Ile Thr Phe Pro Tyr Ile Leu Leu Ile Ser Leu Ser
 130 135 140

Ser	Phe	Val	Gly	Ser	Val	Leu	Asn	Ser	Tyr	His	Lys	Phe	Gly	Ile	Pro	145	150	155	160
Ala	Phe	Thr	Pro	Thr	Phe	Leu	Asn	Val	Ser	Phe	Ile	Val	Phe	Ala	Leu	165	170	175	
Phe	Phe	Val	Pro	Tyr	Phe	Asp	Pro	Pro	Val	Thr	Ala	Leu	Ala	Trp	Ala	180	185	190	
Val	Phe	Val	Gly	Gly	Ile	Leu	Gln	Leu	Gly	Phe	Gln	Leu	Pro	Trp	Leu	195	200	205	
Ala	Lys	Leu	Gly	Phe	Leu	Lys	Leu	Pro	Lys	Leu	Ser	Phe	Lys	Asp	Ala	210	215	220	
Ala	Val	Asn	Arg	Val	Met	Lys	Gln	Met	Ala	Pro	Ala	Ile	Leu	Gly	Val	225	230	235	240
Ser	Val	Ala	Gln	Val	Ser	Leu	Val	Ile	Asn	Thr	Ile	Phe	Ala	Ser	Tyr	245	250	255	
Leu	Gln	Ser	Gly	Ser	Val	Ser	Trp	Met	Tyr	Tyr	Ala	Asp	Arg	Met	Met	260	265	270	
Glu	Leu	Pro	Ser	Gly	Val	Leu	Gly	Ala	Ala	Leu	Gly	Thr	Ile	Leu	Leu	275	280	285	
Pro	Thr	Leu	Ser	Lys	His	Ser	Ala	Asn	Gln	Asp	Thr	Glu	Gln	Phe	Ser	290	295	300	
Ala	Leu	Leu	Asp	Trp	Gly	Leu	Arg	Leu	Cys	Met	Leu	Leu	Thr	Leu	Pro	305	310	315	320
Ala	Ala	Val	Gly	Leu	Ala	Val	Leu	Ser	Phe	Pro	Leu	Val	Ala	Thr	Leu	325	330	335	
Phe	Met	Tyr	Arg	Glu	Phe	Thr	Leu	Phe	Asp	Ala	Gln	Met	Thr	Gln	His	340	345	350	
Ala	Leu	Ile	Ala	Tyr	Ser	Phe	Gly	Leu	Ile	Gly	Leu	Ile	Met	Ile	Lys	355	360	365	
Val	Leu	Ala	Pro	Gly	Phe	Tyr	Ala	Arg	Gln	Asn	Ile	Lys	Thr	Pro	Val	370	375	380	
Lys	Ile	Ala	Ile	Phe	Thr	Leu	Ile	Cys	Thr	Gln	Leu	Met	Asn	Leu	Ala	385	390	395	400
Phe	Ile	Gly	Pro	Leu	Lys	His	Val	Gly	Leu	Ser	Leu	Ala	Ile	Gly	Leu	405	410	415	
Gly	Ala	Cys	Ile	Asn	Ala	Gly	Leu	Leu	Phe	Tyr	Leu	Leu	Arg	Arg	His	420	425	430	
Gly	Ile	Tyr	Gln	Pro	Gly	Lys	Gly	Trp	Ala	Ala	Phe	Leu	Ala	Lys	Met				

435 440 445
 Leu Leu Ser Leu Ala Val Met Cys Gly Gly Leu Trp Ala Ala Gln Ala
 450 455 460
 Tyr Leu Pro Phe Glu Trp Ala His Ala Gly Gly Met Arg Lys Ala Gly
 465 470 475 480
 Gln Leu Cys Ile Leu Ile Ala Val Gly Gly Gly Leu Tyr Phe Ala Ser
 485 490 495
 Leu Ala Ala Leu Gly Phe Arg Pro Arg His Phe Lys Arg Val Glu Asn
 500 505 510

<210> 117
 <211> 1539
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (937)..(937)
 <223> N= Unknown

<400> 117
 atgaatatgc tgggagcttt ggtaaaagtc ggcagcctga cgatggtgtc gcgcggttttg 60
 ggatttgtgc gcgatacggc cattgcgcgc gcattcggcg caggcatggc gacggatgcg 120
 ttctttgtcg cgttcaaact gccaacctg cttcgccgcg tgtttgcgga gggggcggtt 180
 gccaagcgt ttgtgccgat ttggcgga tataaggaaa cgcgttctaa agaggcgacg 240
 gaggttttta tccgccatgt ggcggggatg ctgtcggttg tactgggtcat cgttaccgcg 300
 ctgggcatac ttgcgcgcgc ttgggtgatt tatgtttccg caccgcgttt tgccaaagat 360
 gccgacaaat ttcagctctc tatcgatttg ctgcggatta cgtttcctta tatcttattg 420
 atttcacttt cctcttttgt cggctcggtta ctcaattcct atcataaatt cagcattcct 480
 gcgtttacgc ccacgttcct gaacgtgtcg tttatcgat tcgcgctgtt tttcgtgccc 540
 tatttcgata ctcccgttac cgcgctggct tgggcgggtt ttgtcggcgg cattttgcaa 600
 ctcggttcc aactgccctg gctggcgaaa ctgggtttt tgaaactgcc caaactgagt 660
 ttcaaagatg cggcgggtcaa ccgcgtgatg aaacagatgg cgcctgcgat tttgggcgtg 720
 agcgtggcgc agatttcttt ggtgatcaac acgattttcg cgtcttatct gcaatcgggc 780
 agcgtttcat ggatgtatta cgccgaccgc atgatggaac tgcccgcgcg cgtgctgggg 840
 gcggcactcg gtacgatttt gctgccgact ttgtccaaac actcggcaaa ccaagatacg 900
 gaacagtttt ccgccctgct cgactggggt ttgcgcntgt gcatgctgct gacgctgccg 960
 gcggcggtcg gaatggcggt gttgtcgttc ccgctggtgg caacctgtt tatgtaccga 1020
 gaattcacgc tgtttgacgc gcagatgacg caacacgcgc tgattgccta ttctttcggt 1080

ttaatcggtt taatcatgat taaagtgttg gcgcccggct tttatgcgcg gcaaaacatc 1140
 aaaacgcccgc tcaaaatcgc catcttcacg ctcatattgca cgcagttgat gaaccttgcc 1200
 tttatcgggc cactgaaaca cgtcggactt tcgcttgcca tcggtctggg cgcgtgtatc 1260
 aatgccggat tggtgtttta cctgttgccg agacacggta tttaccaacc tggcaagggt 1320
 tgggcagcgt tcttggcaaa aatgctgctc tcgctcgccg tgatgggagg cggcctgtat 1380
 gccgccc aaa tctggctgcc gttcgactgg gcacacgccg gcggaatgca aaaggccgcc 1440
 cggctcttca tcttgattgc cgtcggcggc ggactgtatt tcgcatcact ggcggctttg 1500
 ggcttccgct cgcgccattt caaacgcgtg gaaagctga 1539

<210> 118
 <211> 512
 <212> PRT

<213> Neisseria meningitidis

<220>

<221> misc_feature

<222> (313)..(313)

<223> Xaa= any amino acid

<400> 118

Met Asn Met Leu Gly Ala Leu Val Lys Val Gly Ser Leu Thr Met Val
1 5 10 15

Ser Arg Val Leu Gly Phe Val Arg Asp Thr Val Ile Ala Arg Ala Phe
20 25 30

Gly Ala Gly Met Ala Thr Asp Ala Phe Phe Val Ala Phe Lys Leu Pro
35 40 45

Asn Leu Leu Arg Arg Val Phe Ala Glu Gly Ala Phe Ala Gln Ala Phe
50 55 60

Val Pro Ile Leu Ala Glu Tyr Lys Glu Thr Arg Ser Lys Glu Ala Thr
65 70 75 80

Glu Ala Phe Ile Arg His Val Ala Gly Met Leu Ser Phe Val Leu Val
85 90 95

Ile Val Thr Ala Leu Gly Ile Leu Ala Ala Pro Trp Val Ile Tyr Val
100 105 110

Ser Ala Pro Gly Phe Ala Lys Asp Ala Asp Lys Phe Gln Leu Ser Ile
115 120 125

Asp Leu Leu Arg Ile Thr Phe Pro Tyr Ile Leu Leu Ile Ser Leu Ser
130 135 140

Ser Phe Val Gly Ser Val Leu Asn Ser Tyr His Lys Phe Ser Ile Pro
145 150 155 160

Ala Phe Thr Pro Thr Phe Leu Asn Val Ser Phe Ile Val Phe Ala Leu
165 170 175

Phe Phe Val Pro Tyr Phe Asp Pro Pro Val Thr Ala Leu Ala Trp Ala
180 185 190

Val Phe Val Gly Gly Ile Leu Gln Leu Gly Phe Gln Leu Pro Trp Leu
195 200 205

Ala Lys Leu Gly Phe Leu Lys Leu Pro Lys Leu Ser Phe Lys Asp Ala
210 215 220

Ala Val Asn Arg Val Met Lys Gln Met Ala Pro Ala Ile Leu Gly Val
225 230 235 240

Ser Val Ala Gln Ile Ser Leu Val Ile Asn Thr Ile Phe Ala Ser Tyr
245 250 255

Leu Gln Ser Gly Ser Val Ser Trp Met Tyr Tyr Ala Asp Arg Met Met
 260 265 270
 Glu Leu Pro Gly Gly Val Leu Gly Ala Ala Leu Gly Thr Ile Leu Leu
 275 280 285
 Pro Thr Leu Ser Lys His Ser Ala Asn Gln Asp Thr Glu Gln Phe Ser
 290 295 300
 Ala Leu Leu Asp Trp Gly Leu Arg Xaa Cys Met Leu Leu Thr Leu Pro
 305 310 315 320
 Ala Ala Val Gly Met Ala Val Leu Ser Phe Pro Leu Val Ala Thr Leu
 325 330 335
 Phe Met Tyr Arg Glu Phe Thr Leu Phe Asp Ala Gln Met Thr Gln His
 340 345 350
 Ala Leu Ile Ala Tyr Ser Phe Gly Leu Ile Gly Leu Ile Met Ile Lys
 355 360 365
 Val Leu Ala Pro Gly Phe Tyr Ala Arg Gln Asn Ile Lys Thr Pro Val
 370 375 380
 Lys Ile Ala Ile Phe Thr Leu Ile Cys Thr Gln Leu Met Asn Leu Ala
 385 390 395 400
 Phe Ile Gly Pro Leu Lys His Val Gly Leu Ser Leu Ala Ile Gly Leu
 405 410 415
 Gly Ala Cys Ile Asn Ala Gly Leu Leu Phe Tyr Leu Leu Arg Arg His
 420 425 430
 Gly Ile Tyr Gln Pro Gly Lys Gly Trp Ala Ala Phe Leu Ala Lys Met
 435 440 445
 Leu Leu Ser Leu Ala Val Met Gly Gly Gly Leu Tyr Ala Ala Gln Ile
 450 455 460
 Trp Leu Pro Phe Asp Trp Ala His Ala Gly Gly Met Gln Lys Ala Ala
 465 470 475 480
 Arg Leu Phe Ile Leu Ile Ala Val Gly Gly Gly Leu Tyr Phe Ala Ser
 485 490 495
 Leu Ala Ala Leu Gly Phe Arg Pro Arg His Phe Lys Arg Val Glu Ser
 500 505 510

<210> 119
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature

<222> (1)..(8)
 <223> N= Unknown

<400> 119
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8

<210> 120
 <211> 454
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 120
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 Ser Arg Val Leu Gly Phe Val Arg Asp Thr Val Ile Ala Arg Ala Phe
 20 25 30
 Gly Ala Gly Met Ala Thr Asp Ala Phe Phe Val Ala Phe Lys Leu Pro
 35 40 45
 Asn Leu Leu Arg Arg Val Phe Ala Glu Gly Ala Phe Ala Gln Ala Phe
 50 55 60
 Val Pro Ile Leu Ala Glu Tyr Lys Glu Thr Arg Ser Lys Glu Ala Thr
 65 70 75 80
 Glu Ala Phe Ile Arg His Val Ala Gly Met Leu Ser Phe Val Leu Ile
 85 90 95
 Val Val Thr Ala Leu Gly Ile Leu Ala Ala Pro Trp Val Ile Tyr Val
 100 105 110
 Ser Ala Pro Gly Phe Thr Lys Asp Ala Asp Lys Phe Gln Leu Ser Ile
 115 120 125
 Ser Leu Leu Arg Ile Thr Phe Pro Tyr Ile Leu Leu Ile Ser Leu Ser
 130 135 140
 Ser Phe Val Gly Ser Ile Leu Asn Ser Tyr His Lys Phe Gly Ile Pro
 145 150 155 160
 Ala Phe Thr Pro Thr Phe Leu Asn Ile Ser Phe Ile Val Phe Ala Leu
 165 170 175
 Phe Phe Val Pro Tyr Phe Asp Pro Pro Val Thr Ala Leu Ala Trp Ala
 180 185 190
 Val Phe Val Gly Gly Ile Leu Gln Leu Gly Phe Gln Leu Pro Trp Leu
 195 200 205
 Ala Lys Leu Gly Phe Leu Lys Leu Pro Lys Leu Asn Phe Lys Asp Ala
 210 215 220
 Ala Val Asn Arg Val Met Lys Gln Met Ala Pro Ala Ile Leu Gly Val

225	230	235	240
Ser Val Ala Gln Ile	Ser Leu Val Ile	Asn Thr Ile Phe Ala	Ser Tyr
245	250	255	
Leu Gln Ser Gly Ser Val	Ser Trp Met Tyr Tyr	Ala Asp Arg Met	Met
260	265	270	
Glu Leu Pro Gly Gly Val	Leu Gly Ala Ala	Leu Gly Thr Ile	Leu Leu
275	280	285	
Pro Thr Leu Ser Lys His	Ser Ala Asn Gln Asp	Thr Glu Gln Phe	Ser
290	295	300	
Ala Leu Leu Asp Trp Gly	Leu Arg Leu Cys Met	Leu Leu Thr Leu	Pro
305	310	315	320
Ala Ala Ala Gly Leu Ala	Val Leu Ser Phe Pro	Leu Val Ala Thr	Leu
325	330	335	
Phe Met Tyr Arg Glu Phe	Thr Leu Phe Asp Ala	Gln Met Thr Gln	His
340	345	350	
Ala Leu Ile Ala Tyr Ser	Phe Gly Leu Ile Gly	Leu Ile Met Ile	Lys
355	360	365	
Val Leu Ala Ser Gly Phe	Tyr Ala Arg Gln Asn	Ile Lys Thr Pro	Val
370	375	380	
Lys Ile Ala Ile Phe Thr	Leu Ile Cys Thr Gln	Leu Met Asn Leu	Ala
385	390	395	400
Phe Ile Gly Pro Leu Lys	His Ala Gly Leu Ser	Leu Ala Ile Gly	Leu
405	410	415	
Gly Ala Cys Ile Asn Ala	Gly Leu Leu Phe Phe	Leu Phe Arg Lys	His
420	425	430	
Gly Ile Tyr Arg Pro Gly	Gln Gly Leu Gly Gln	Pro Ser Trp Arg	Lys
435	440	445	
Cys Cys Ser Arg Ser Pro			
450			

<210> 121
 <211> 1539
 <212> DNA

<213> Neisseria gonorrhoeae

<400> 121	
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ggatttgtgc gcgatacggc cattgcgcgg gcattcggcg cgggtatggc gacggatgcg	120
ttttttgtcg cgttcaaact gcccaacctg cttcgccgcg tgtttgcgga gggggcggtt	180
gcccaagcgt ttgtgccgat ttggcggaata tataaggaaa cgcgttctaa agaggcgacg	240
gaggctttta tccgccacgt tgcgggaatg ctgtcgtttg tgctgatcgt cgttaccgcg	300

ctgggcatac	ttgccgcgcc	ttgggtgatt	tatgtttccg	cgcccggcctt	taccaaagac	360
gcggacaagt	tccaactttc	catcagcctg	ctgcggatta	cgtttcctta	tatattattg	420
atttctttgt	cttcttttgt	cggtctgata	ctcaattcct	accataagtt	cggcattccc	480
gcgtttacgc	ccacgttttt	aaacatctct	tttatcgtat	tcgcactggt	tttcgtgccg	540
tatttcgata	cgcccgttac	cgcgctggcg	tgggcgggtt	ttgtcggcgg	tattttgcag	600
ctcggtttcc	aactgccgtg	gctggcgaaa	ctgggctttt	tgaaactgcc	caaactgaat	660
ttcaaagatg	cggcgggtcaa	ccgcgtcatg	aaacagatgg	cgctgcgat	tttgggcgtg	720
agcgtggcgc	aaatttcttt	ggttatcaac	acgattttcg	cgtcttatct	gcaatcgggc	780
agcgtttcat	ggatgtatta	cgccgaccgc	atgatggagc	tgcgccgggg	cgtgctgggg	840
gctgcactcg	gtacaatttt	gctgccgact	ttgtccaaac	actcggcaaa	ccaagatacg	900
gaacagtttt	ccgccctgct	cgactggggg	ttgcgcctgt	gcatgctgct	gacgctgccg	960
gcggcggccg	gactggcggg	attgtcgttc	ccgctgggtg	cgacgctggt	tatgtaccga	1020
gaattcacgc	tgtttgacgc	acaaatgacg	caacacgcgc	tgattgccta	ttctttcggg	1080
ttaatcgggt	taattatgat	taaagtgttg	gcatccggct	tttatgcgcg	gcaaaacatc	1140
aaaacgcccg	tcaaaatcgc	catcttcacg	ctcatctgca	cgcagttgat	gaacctcgcc	1200
tttatcggtc	cgttgaaaca	cgccgggctt	tcgctcgcca	tcggcctggg	cgcgtgcac	1260
aacgccggat	tgttgttctt	cctggtgcgc	aaacacggta	tttaccggcc	cggcaggggt	1320
tgggcggcgt	tcttggcgaa	aatgctgctc	gcgctcgccg	tgatgtgcgg	cggactgtgg	1380
gcggcgcagg	cttgctgccc	gttcgaatgg	gcgcacgcgc	gcggaatgcg	gaaagcgggg	1440
cagctctgca	tcctgattgc	cgtcggcgcc	ggactgtatt	tcgcatctct	ggcggccttg	1500
ggcttcgcgc	cgcgccattt	caaacgcgtg	gaaagctga			1539

<210> 122

<211> 512

<212> PRT

<213> Neisseria gonorrhoeae

<400> 122

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Ser	Arg	Val	Leu	Gly	Phe	Val	Arg	Asp	Thr	Val	Ile	Ala	Arg	Ala	Phe
			20					25					30		
Gly	Ala	Gly	Met	Ala	Thr	Asp	Ala	Phe	Phe	Val	Ala	Phe	Lys	Leu	Pro
			35				40					45			
Asn	Leu	Leu	Arg	Arg	Val	Phe	Ala	Glu	Gly	Ala	Phe	Ala	Gln	Ala	Phe
			50			55					60				
Val	Pro	Ile	Leu	Ala	Glu	Tyr	Lys	Glu	Thr	Arg	Ser	Lys	Glu	Ala	Thr
	65				70				75					80	
Glu	Ala	Phe	Ile	Arg	His	Val	Ala	Gly	Met	Leu	Ser	Phe	Val	Leu	Ile
			85					90						95	
Val	Val	Thr	Ala	Leu	Gly	Ile	Leu	Ala	Ala	Pro	Trp	Val	Ile	Tyr	Val
			100					105					110		
Ser	Ala	Pro	Gly	Phe	Thr	Lys	Asp	Ala	Asp	Lys	Phe	Gln	Leu	Ser	Ile
			115				120					125			
Ser	Leu	Leu	Arg	Ile	Thr	Phe	Pro	Tyr	Ile	Leu	Leu	Ile	Ser	Leu	Ser
			130				135					140			
Ser	Phe	Val	Gly	Ser	Ile	Leu	Asn	Ser	Tyr	His	Lys	Phe	Gly	Ile	Pro

145		150		155		160
Ala Phe Thr Pro Thr Phe Leu Asn Ile Ser Phe Ile Val Phe Ala Leu						
	165			170		175
Phe Phe Val Pro Tyr Phe Asp Pro Pro Val Thr Ala Leu Ala Trp Ala						
	180			185		190
Val Phe Val Gly Gly Ile Leu Gln Leu Gly Phe Gln Leu Pro Trp Leu						
	195			200		205
Ala Lys Leu Gly Phe Leu Lys Leu Pro Lys Leu Asn Phe Lys Asp Ala						
	210			215		220
Ala Val Asn Arg Val Met Lys Gln Met Ala Pro Ala Ile Leu Gly Val						
	225			230		235
Ser Val Ala Gln Ile Ser Leu Val Ile Asn Thr Ile Phe Ala Ser Tyr						
	245			250		255
Leu Gln Ser Gly Ser Val Ser Trp Met Tyr Tyr Ala Asp Arg Met Met						
	260			265		270
Glu Leu Arg Arg Gly Val Leu Gly Ala Ala Leu Gly Thr Ile Leu Leu						
	275			280		285
Pro Thr Leu Ser Lys His Ser Ala Asn Gln Asp Thr Glu Gln Phe Ser						
	290			295		300
Ala Leu Leu Asp Trp Gly Leu Arg Leu Cys Met Leu Leu Thr Leu Pro						
	305			310		315
Ala Ala Ala Gly Leu Ala Val Leu Ser Phe Pro Leu Val Ala Thr Leu						
	325			330		335
Phe Met Tyr Arg Glu Phe Thr Leu Phe Asp Ala Gln Met Thr Gln His						
	340			345		350
Ala Leu Ile Ala Tyr Ser Phe Gly Leu Ile Gly Leu Ile Met Ile Lys						
	355			360		365
Val Leu Ala Ser Gly Phe Tyr Ala Arg Gln Asn Ile Lys Thr Pro Val						
	370			375		380
Lys Ile Ala Ile Phe Thr Leu Ile Cys Thr Gln Leu Met Asn Leu Ala						
	385			390		395
Phe Ile Gly Pro Leu Lys His Ala Gly Leu Ser Leu Ala Ile Gly Leu						
	405			410		415
Gly Ala Cys Ile Asn Ala Gly Leu Leu Phe Phe Leu Leu Arg Lys His						
	420			425		430
Gly Ile Tyr Arg Pro Gly Arg Gly Trp Ala Ala Phe Leu Ala Lys Met						
	435			440		445

Leu Leu Ala Leu Ala Val Met Cys Gly Gly Leu Trp Ala Ala Gln Ala
 450 455 460

Cys Leu Pro Phe Glu Trp Ala His Ala Gly Gly Met Arg Lys Ala Gly
 465 470 475 480

Gln Leu Cys Ile Leu Ile Ala Val Gly Gly Gly Leu Tyr Phe Ala Ser
 485 490 495

Leu Ala Ala Leu Gly Phe Arg Pro Arg His Phe Lys Arg Val Glu Ser
 500 505 510

<210> 123
 <211> 474
 <212> DNA
 <213> Neisseria meningitidis

<400> 123
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 tacgacggcc cggccattac cgaagtcgcg ttgcttggcg aagaatatgc cggatatgcbc 120
 ccctcgatga aagtcaagga aggcgatgcc gtcaaaaaag gccaaagtgc gtttgaagac 180
 aaaaaagaatc cgggcggtgt gtttactgcb cgggcttcag gcaaaatcgc cgcgattcac 240
 cgtggcgaaa agcgcgtact tcagtcagtc gtgattgccg ttgaargcaa cgacgaaatc 300
 gagtttgaac gctacgcacc tgaagcgctg gcaaaacttaa gcggcgaaga agtgcgcccgc 360
 aacctgatcc aatccggttt gtggactgcb ctgcgcaccc gtccggttcag caaaattcct 420
 gccgtcgatg ccgagccggt cgccatcttc gtcaatgcga tggacaccaa tccg 474

<210> 124
 <211> 158
 <212> PRT
 <213> Neisseria meningitidis

<220>
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 <222> (96)..(96)
 <223> Xaa= any amino acid

<400> 124
 Met Ile Lys Ile Lys Lys Gly Leu Asn Leu Pro Ile Ala Gly Arg Pro
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Glu Gln Ala Val Tyr Asp Gly Pro Ala Ile Thr Glu Val Ala Leu Leu
 20 25 30

Gly Glu Glu Tyr Ala Gly Met Arg Pro Ser Met Lys Val Lys Glu Gly
 35 40 45

Asp Ala Val Lys Lys Gly Gln Val Leu Phe Glu Asp Lys Lys Asn Pro
 50 55 60

Gly Val Val Phe Thr Ala Pro Ala Ser Gly Lys Ile Ala Ala Ile His
 65 70 75 80

Arg Gly Glu Lys Arg Val Leu Gln Ser Val Val Ile Ala Val Glu Xaa
 85 90 95

Asn Asp Glu Ile Glu Phe Glu Arg Tyr Ala Pro Glu Ala Leu Ala Asn
 100 105 110

Leu Ser Gly Glu Glu Val Arg Arg Asn Leu Ile Gln Ser Gly Leu Trp
 115 120 125

Thr Ala Leu Arg Thr Arg Pro Phe Ser Lys Ile Pro Ala Val Asp Ala
 130 135 140

Glu Pro Phe Ala Ile Phe Val Asn Ala Met Asp Thr Asn Pro
 145 150 155

<210> 125
 <211> 1344
 <212> DNA
 <213> Neisseria meningitidis

<400> 125
 atgattaaaa tcaaaaaagg tctaaacctg cccatcgcgg gcagaccgga gcaagccggt 60
 tacgacggcc cgccattac cgaagtcgcg ttgcttgggc aagaatatgc cggatatgcgc 120
 ccctcgatga aagtcaagga aggcgatgcc gtcaaaaaag gccaatgct gtttgaagac 180
 aaaaagaatc cgggcgtggt gtttactgcg ccggcttcag gcaaaatcgc cgcgattcac 240
 cgtggcgaaa agcgcgtact tcagtcagtc gtgattgccc ttgaaggcaa cgacgaaatc 300
 gagtttgaac gctacgcacc tgaagcgtg gcaaacttaa gcggcgaaga agtgcgccgc 360
 aacctgatcc aatccggttt gtggactgcg ctgcgcaccc gtccgttcag caaaattcct 420
 gccgtcgatg ccgagccggt cgccatcttc gtcaatgcga tggacaccaa tccgctgggt 480
 gccgacccta cggtcattat caaagaagcc gccgaaggatt tcaaacgcgg cctgttggtta 540
 ttgagccggt tgaccgaacg caaaatccat gtttgtaagg cagctggcgc agacgtgccg 600
 tctgaaaatg ctgccaatat cgaaacacat gaattcggcg gcccgcatcc tgccgggtttg 660
 agtggcacgc acattcattt datcgagccg gtcggcgcgga ataaaaccgt gtggaccatc 720
 aattatcaag atgtaattac cattggccgt ttgtttgcaa caggccgtct gaacaccgag 780
 cgcgtgattg ccctaggttg ttctcaagtc aacaaaccgc gcctcttgcg taccgttttg 840
 ggtgcgaaag tatcgcaaat tactgcgggc gaattggttg acacagacaa ccgcgtgatt 900
 tccggttcgg tattgaacgg cgcgattaca caaggcgcgc acgattattt gggacgctac 960
 cacaatcaga ttccggttat cgaagaaggc cgcagcaaag agctgttcgg ctgggttgcg 1020
 ccgcagccgg acaaatatc catcacgctg acaaccctcg gccatttcct gaaaaacaaa 1080
 ctcttcaagt tcaacacagc cgtcaacggc ggcgaccgcg ccatggtgcc gattgggtact 1140
 tacgacgcg tgatgccctt ggatatcctg cccaccctgc ttttgcgga tttaatcgtc 1200
 ggcgataccg acagcgcgca ggcattgggt tgcttggaat tggacgaaga agacctcgct 1260
 ttgtgcagct tcgtctgccc gggcaaatac gaatacggcc cgctgttgcg caaagtgcgt 1320
 gaaaccattg agaaggaagg ctga 1344

<210> 126
 <211> 447
 <212> PRT
 <213> Neisseria meningitidis

<400> 126
 Met Ile Lys Ile Lys Lys Gly Leu Asn Leu Pro Ile Ala Gly Arg Pro
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Glu Gln Ala Val Tyr Asp Gly Pro Ala Ile Thr Glu Val Ala Leu Leu
 20 25 30

Gly Glu Glu Tyr Ala Gly Met Arg Pro Ser Met Lys Val Lys Glu Gly

35					40					45					
Asp	Ala	Val	Lys	Lys	Gly	Gln	Val	Leu	Phe	Glu	Asp	Lys	Lys	Asn	Pro
50						55					60				
Gly	Val	Val	Phe	Thr	Ala	Pro	Ala	Ser	Gly	Lys	Ile	Ala	Ala	Ile	His
65					70					75					80
Arg	Gly	Glu	Lys	Arg	Val	Leu	Gln	Ser	Val	Val	Ile	Ala	Val	Glu	Gly
				85					90					95	
Asn	Asp	Glu	Ile	Glu	Phe	Glu	Arg	Tyr	Ala	Pro	Glu	Ala	Leu	Ala	Asn
			100					105					110		
Leu	Ser	Gly	Glu	Glu	Val	Arg	Arg	Asn	Leu	Ile	Gln	Ser	Gly	Leu	Trp
		115					120					125			
Thr	Ala	Leu	Arg	Thr	Arg	Pro	Phe	Ser	Lys	Ile	Pro	Ala	Val	Asp	Ala
	130					135					140				
Glu	Pro	Phe	Ala	Ile	Phe	Val	Asn	Ala	Met	Asp	Thr	Asn	Pro	Leu	Ala
145					150					155					160
Ala	Asp	Pro	Thr	Val	Ile	Ile	Lys	Glu	Ala	Ala	Glu	Asp	Phe	Lys	Arg
				165					170					175	
Gly	Leu	Leu	Val	Leu	Ser	Arg	Leu	Thr	Glu	Arg	Lys	Ile	His	Val	Cys
			180					185					190		
Lys	Ala	Ala	Gly	Ala	Asp	Val	Pro	Ser	Glu	Asn	Ala	Ala	Asn	Ile	Glu
	195						200					205			
Thr	His	Glu	Phe	Gly	Gly	Pro	His	Pro	Ala	Gly	Leu	Ser	Gly	Thr	His
	210					215					220				
Ile	His	Phe	Ile	Glu	Pro	Val	Gly	Ala	Asn	Lys	Thr	Val	Trp	Thr	Ile
225					230					235					240
Asn	Tyr	Gln	Asp	Val	Ile	Thr	Ile	Gly	Arg	Leu	Phe	Ala	Thr	Gly	Arg
				245					250					255	
Leu	Asn	Thr	Glu	Arg	Val	Ile	Ala	Leu	Gly	Gly	Ser	Gln	Val	Asn	Lys
			260					265					270		
Pro	Arg	Leu	Leu	Arg	Thr	Val	Leu	Gly	Ala	Lys	Val	Ser	Gln	Ile	Thr
	275						280					285			
Ala	Gly	Glu	Leu	Val	Asp	Thr	Asp	Asn	Arg	Val	Ile	Ser	Gly	Ser	Val
	290					295					300				
Leu	Asn	Gly	Ala	Ile	Thr	Gln	Gly	Ala	His	Asp	Tyr	Leu	Gly	Arg	Tyr
305					310					315					320
His	Asn	Gln	Ile	Ser	Val	Ile	Glu	Glu	Gly	Arg	Ser	Lys	Glu	Leu	Phe
				325					330					335	

Gly Trp Val Ala Pro Gln Pro Asp Lys Tyr Ser Ile Thr Arg Thr Thr
 340 345 350
 Leu Gly His Phe Leu Lys Asn Lys Leu Phe Lys Phe Asn Thr Ala Val
 355 360 365
 Asn Gly Gly Asp Arg Ala Met Val Pro Ile Gly Thr Tyr Glu Arg Val
 370 375 380
 Met Pro Leu Asp Ile Leu Pro Thr Leu Leu Leu Arg Asp Leu Ile Val
 385 390 395 400
 Gly Asp Thr Asp Ser Ala Gln Ala Leu Gly Cys Leu Glu Leu Asp Glu
 405 410 415
 Glu Asp Leu Ala Leu Cys Ser Phe Val Cys Pro Gly Lys Tyr Glu Tyr
 420 425 430
 Gly Pro Leu Leu Arg Lys Val Leu Glu Thr Ile Glu Lys Glu Gly
 435 440 445

<210> 127
 <211> 1344
 <212> DNA
 <213> Neisseria meningitidis

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 <222> (125)..(125)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (187)..(187)
 <223> N= Unknown

<220>
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 <222> (213)..(213)
 <223> N= Unknown

<220>
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 <222> (348)..(348)
 <223> N= Unknown

<220>
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 <223> N= Unknown

<220>
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<222> (354)..(355)
 <223> N= Unknown

<220>
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 <222> (357)..(358)
 <223> N= Unknown

<220>
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 <222> (398)..(398)
 <223> N= Unknown

<220>
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 <222> (477)..(477)
 <223> N= Unknown

<220>
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 <222> (512)..(512)
 <223> N= Unknown

<220>
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 <222> (516)..(516)
 <223> N= Unknown

<220>
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 <222> (529)..(529)
 <223> N= Unknown

<220>
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 <222> (532)..(532)
 <223> N= Unknown

<220>
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 <222> (1296)..(1296)
 <223> N= Unknown

<220>
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 <222> (1327)..(1327)
 <223> N= Unknown

<400> 127
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 ccctngatga aagtcaagga aggcgatgcc gtcaaaaaag gccaaagtgc gtttgaagac 180
 aaaaagnatc cgggcgtggt gtttaccgcg ccngtttcag gcaaaatcgc cgccatccat 240
 cgcggcgaaa agcgcgtact tcagtcggtc gtgattgccg ttgaaggcaa cgacgaaatc 300
 gagttcgaac gctacgcgcc cgaagcggtg gcaaaactta gcggcganga antnngnngc 360
 aatctgatcc aatccggttt gtggactgcg ctgcgtancc gtccggttcag caaaatccct 420

gccgtcgatg ccgagccggt cgccatcttc gtcaatgcga tggacaccaa tccgctngcg 480

gcagaccctg	tggttgtgat	caaagaagcc	gncgangatt	tcagacgang	tntgctggta	540
ttgagccgtt	tgaccgagcg	taaaatccat	gtgtgtaagg	cagctggcgc	agacgtgccg	600
tctgaaaatg	ctgccaacat	cgaaacacat	gaattcggcg	gcccgcattcc	ggccggtttg	660
agtggcacgc	acattcattt	cattgagccg	gtcggtgcaa	acaaaaccgt	ttggaccatc	720
aattatcaag	atgtaattgc	catcggacgt	ttgtttgcaa	caggccgtct	gaacaccgag	780
cgcgtgattg	ctttgggttg	ttctcaagtc	aacaaaccac	gcctcttgcg	taccgttttg	840
ggtgcgaaag	tatcgcaaat	tactgcgggc	gaattggttg	acgcagacaa	ccgcgtgatt	900
tccggttcgg	tattgaacgg	cgcgattaca	caaggcgcgc	acgattattt	gggacgctac	960
cacaatcaga	tttccgttat	cgaagaaggc	cgcagcaaag	agctgttcgg	ctggggttgcg	1020
ccgcagccgg	acaaatactc	catcacgcgt	acgaccctcg	gccatttcct	gaaaaacaaa	1080
ctcttcaagt	tcacgacagc	cgtcaacggg	ggcgaccgcg	ccatgggtgcc	gattgggtact	1140
tacgagcgcg	taatgccgct	agacatcctg	cctaccctgc	ttttgcgcga	tttaatcgtc	1200
ggcgataccg	acagcgcgca	agcattgggt	tgcttggaat	tggaacgaaga	agacctcgct	1260
ttgtgcagct	tcgtctgccc	gggcaaatac	gaatanggcc	cgtctgttgcg	taagggtgctg	1320
gaaaccnttg	agaaggaagg	ctga				1344

<210> 128
 <211> 447
 <212> PRT
 <213> Neisseria meningitidis

<220>
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 <222> (42)..(42)
 <223> Xaa= any amino acid

<220>
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 <222> (63)..(63)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (116)..(116)
 <223> Xaa= any amino acid

<220>
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 <222> (118)..(120)
 <223> Xaa= any amino acid

<220>
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 <222> (133)..(133)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (171)..(172)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (177)..(178)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (432)..(432)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (443)..(443)
 <223> Xaa= any amino acid

<400> 128
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 Glu Gln Val Ile Tyr Asp Gly Pro Val Ile Thr Glu Val Ala Leu Leu
 20 25 30
 Gly Glu Glu Tyr Ala Gly Met Arg Pro Xaa Met Lys Val Lys Glu Gly
 35 40 45
 Asp Ala Val Lys Lys Gly Gln Val Leu Phe Glu Asp Lys Lys Xaa Pro
 50 55 60
 Gly Val Val Phe Thr Ala Pro Val Ser Gly Lys Ile Ala Ala Ile His
 65 70 75 80
 Arg Gly Glu Lys Arg Val Leu Gln Ser Val Val Ile Ala Val Glu Gly
 85 90 95
 Asn Asp Glu Ile Glu Phe Glu Arg Tyr Ala Pro Glu Ala Leu Ala Asn
 100 105 110
 Leu Ser Gly Xaa Glu Xaa Xaa Xaa Asn Leu Ile Gln Ser Gly Leu Trp
 115 120 125
 Thr Ala Leu Arg Xaa Arg Pro Phe Ser Lys Ile Pro Ala Val Asp Ala
 130 135 140
 Glu Pro Phe Ala Ile Phe Val Asn Ala Met Asp Thr Asn Pro Leu Ala
 145 150 155 160
 Ala Asp Pro Val Val Val Ile Lys Glu Ala Xaa Xaa Asp Phe Arg Arg
 165 170 175
 Xaa Xaa Leu Val Leu Ser Arg Leu Thr Glu Arg Lys Ile His Val Cys
 180 185 190
 Lys Ala Ala Gly Ala Asp Val Pro Ser Glu Asn Ala Ala Asn Ile Glu
 195 200 205
 Thr His Glu Phe Gly Gly Pro His Pro Ala Gly Leu Ser Gly Thr His
 210 215 220
 Ile His Phe Ile Glu Pro Val Gly Ala Asn Lys Thr Val Trp Thr Ile
 225 230 235 240

Asn Tyr Gln Asp Val Ile Ala Ile Gly Arg Leu Phe Ala Thr Gly Arg
 245 250 255
 Leu Asn Thr Glu Arg Val Ile Ala Leu Gly Gly Ser Gln Val Asn Lys
 260 265 270
 Pro Arg Leu Leu Arg Thr Val Leu Gly Ala Lys Val Ser Gln Ile Thr
 275 280 285
 Ala Gly Glu Leu Val Asp Ala Asp Asn Arg Val Ile Ser Gly Ser Val
 290 295 300
 Leu Asn Gly Ala Ile Thr Gln Gly Ala His Asp Tyr Leu Gly Arg Tyr
 305 310 315 320
 His Asn Gln Ile Ser Val Ile Glu Glu Gly Arg Ser Lys Glu Leu Phe
 325 330 335
 Gly Trp Val Ala Pro Gln Pro Asp Lys Tyr Ser Ile Thr Arg Thr Thr
 340 345 350
 Leu Gly His Phe Leu Lys Asn Lys Leu Phe Lys Phe Thr Thr Ala Val
 355 360 365
 Asn Gly Gly Asp Arg Ala Met Val Pro Ile Gly Thr Tyr Glu Arg Val
 370 375 380
 Met Pro Leu Asp Ile Leu Pro Thr Leu Leu Leu Arg Asp Leu Ile Val
 385 390 395 400
 Gly Asp Thr Asp Ser Ala Gln Ala Leu Gly Cys Leu Glu Leu Asp Glu
 405 410 415
 Glu Asp Leu Ala Leu Cys Ser Phe Val Cys Pro Gly Lys Tyr Glu Xaa
 420 425 430
 Gly Pro Leu Leu Arg Lys Val Leu Glu Thr Xaa Glu Lys Glu Gly
 435 440 445

<210> 129
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 129
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8

<210> 130
 <211> 322
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 130

Met Ile Lys Ile Lys Lys Gly Leu Asn Leu Pro Ile Ala Gly Arg Pro
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Glu Gln Val Ile Tyr Asp Gly Pro Ala Ile Thr Glu Val Ala Leu Leu
20 25 30

Gly Glu Glu Tyr Val Gly Met Arg Pro Ser Met Lys Ile Lys Glu Gly
35 40 45

Glu Ala Val Lys Lys Gly Gln Val Leu Phe Glu Asp Lys Lys Asn Pro
50 55 60

Gly Val Val Phe Thr Ala Pro Ala Ser Gly Lys Ile Ala Ala Ile His
65 70 75 80

Arg Gly Glu Lys Arg Val Leu Gln Ser Val Val Ile Ala Val Glu Gly
85 90 95

Asn Asp Glu Ile Glu Phe Glu Arg Tyr Val Pro Glu Ala Leu Ala Lys
100 105 110

Leu Ser Ser Glu Lys Val Arg Arg Asn Leu Ile Gln Ser Gly Leu Trp
115 120 125

Thr Ala Leu Arg Thr Arg Pro Phe Ser Lys Ile Pro Ala Val Asp Ala
130 135 140

Glu Pro Phe Ala Ile Phe Val Asn Ala Met Asp Thr Asn Pro Leu Ala
145 150 155 160

Ala Asp Pro Thr Val Ile Ile Lys Glu Ala Ala Glu Asp Phe Lys Arg
165 170 175

Gly Leu Leu Val Leu Ser Arg Leu Thr Glu Arg Lys Ile His Val Cys
180 185 190

Lys Ala Ala Gly Ala Asp Val Pro Ser Glu Asn Ala Ala Asn Ile Glu
195 200 205

Thr His Glu Phe Gly Gly Pro His Pro Ala Gly Leu Ser Gly Thr His
210 215 220

Ile His Phe Ile Glu Pro Val Gly Ala Asn Lys Thr Val Trp Thr Ile
225 230 235 240

Asn Tyr Gln Asp Val Ile Ala Ile Gly Arg Leu Phe Val Thr Gly Arg
245 250 255

Leu Asn Thr Glu Arg Val Val Ala Leu Gly Gly Leu Gln Val Asn Lys
260 265 270

Pro Arg Leu Leu Arg Thr Val Leu Gly Ala Lys Val Ser Gln Leu Thr
275 280 285

Ala Gly Glu Leu Val Asp Ala Asp Asn Arg Val Ile Ser Gly Ser Val

290

295

300

Leu Asn Gly Ala Ile Ala Gln Gly Ala His Asp Tyr Leu Gly Arg Tyr
305 310 315 320

His Asn

<210> 131
<211> 1344
<212> DNA
<213> *Neisseria gonorrhoeae*

<400> 131
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ccctcgatga aaatcaagga aggtgaagcc gtcaaaaaag gccagtgct gtttgaagac 180
aaaaagaatc cgggcgtagt atttactgag cgggcttcag gcaaaatcgc cgctattcac 240
cgtggcgaaa agcgcgtact tcagtcagtc gtgattgagg ttgaaggcaa cgacgaaatc 300
gagttcgaac gctacgtacc tgaagcgtg gcaaaattga gcagcgaaaa agtgcgcccgc 360
aacctgattc aatcaggctt atggactgag cttcgacccc gtccgttcag caaaatccct 420
gccgtagatg ccgagccggt cgccatcttc gtcaatgcga tggacaccaa tccgctggct 480
gccgacccta cggatcatcat caaagaagcc gccgaagact tcaaacgcgg cctgttggtg 540
ttgagccgcc tgaccgaacg taaaatccat gtgtgtaaag cagcaggcgc agacgtgccg 600
tctgaaaatg ctgccaatat cgaaacacat gaatttgagg gcccgcatcc tgccggcttg 660
agtggcacgc acattcattt catcgagcca gtcggcgaga ataaaaccgt gtggaccatc 720
aattatcaag acgtgattgc tatcgagcgt ttgttcgtaa caggccgtct gaataccgag 780
cgcggtggtg ccttgaggcg cctgcaagtc aacaaaccgc gcctcttgag taccgttttg 840
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tccggttcgg tattgaacgg tgcgattgca caaggcgcgc atgattattt gggacgctac 960
cacaatcaga tttccgttat cgaagaaggc cgcagcaaag agctgttcgg ctgggttgag 1020
ccgcagccgg acaaatactc catcacgcgc accactctcg gccatttcct aaaaaacaaa 1080
ctcttcaagt tcacgacagc cgtcaacggc ggcgaccgcg ccattggtacc gatcggcact 1140
tatgagcgcg taatgccgtt ggacatctcg cctaccttgc ttttgcgaga tttaatcgtc 1200
ggcgataccg acagcgcgca ggctttgggt tgcttgggat tggacgaaga agacctcgct 1260
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gaaaccattg agaaggaagg ctga 1344

<210> 132
<211> 447
<212> PRT
<213> *Neisseria gonorrhoeae*

<400> 132
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Glu Gln Val Ile Tyr Asp Gly Pro Ala Ile Thr Glu Val Ala Leu Leu
20 25 30
Gly Glu Glu Tyr Val Gly Met Arg Pro Ser Met Lys Ile Lys Glu Gly
35 40 45
Glu Ala Val Lys Lys Gly Gln Val Leu Phe Glu Asp Lys Lys Asn Pro

50

55

60

Gly Val Val Phe Thr Ala Pro Ala Ser Gly Lys Ile Ala Ala Ile His
 65 70 75 80
 Arg Gly Glu Lys Arg Val Leu Gln Ser Val Val Ile Ala Val Glu Gly
 85 90 95
 Asn Asp Glu Ile Glu Phe Glu Arg Tyr Val Pro Glu Ala Leu Ala Lys
 100 105 110
 Leu Ser Ser Glu Lys Val Arg Arg Asn Leu Ile Gln Ser Gly Leu Trp
 115 120 125
 Thr Ala Leu Arg Thr Arg Pro Phe Ser Lys Ile Pro Ala Val Asp Ala
 130 135 140
 Glu Pro Phe Ala Ile Phe Val Asn Ala Met Asp Thr Asn Pro Leu Ala
 145 150 155 160
 Ala Asp Pro Thr Val Ile Ile Lys Glu Ala Ala Glu Asp Phe Lys Arg
 165 170 175
 Gly Leu Leu Val Leu Ser Arg Leu Thr Glu Arg Lys Ile His Val Cys
 180 185 190
 Lys Ala Ala Gly Ala Asp Val Pro Ser Glu Asn Ala Ala Asn Ile Glu
 195 200 205
 Thr His Glu Phe Gly Gly Pro His Pro Ala Gly Leu Ser Gly Thr His
 210 215 220
 Ile His Phe Ile Glu Pro Val Gly Ala Asn Lys Thr Val Trp Thr Ile
 225 230 235 240
 Asn Tyr Gln Asp Val Ile Ala Ile Gly Arg Leu Phe Val Thr Gly Arg
 245 250 255
 Leu Asn Thr Glu Arg Val Val Ala Leu Gly Gly Leu Gln Val Asn Lys
 260 265 270
 Pro Arg Leu Leu Arg Thr Val Leu Gly Ala Lys Val Ser Gln Leu Thr
 275 280 285
 Ala Gly Glu Leu Val Asp Ala Asp Asn Arg Val Ile Ser Gly Ser Val
 290 295 300
 Leu Asn Gly Ala Ile Ala Gln Gly Ala His Asp Tyr Leu Gly Arg Tyr
 305 310 315 320
 His Asn Gln Ile Ser Val Ile Glu Glu Gly Arg Ser Lys Glu Leu Phe
 325 330 335
 Gly Trp Val Ala Pro Gln Pro Asp Lys Tyr Ser Ile Thr Arg Thr Thr
 340 345 350

Leu Gly His Phe Leu Lys Asn Lys Leu Phe Lys Phe Thr Thr Ala Val
 355 360 365

Asn Gly Gly Asp Arg Ala Met Val Pro Ile Gly Thr Tyr Glu Arg Val
 370 375 380

Met Pro Leu Asp Ile Leu Pro Thr Leu Leu Leu Arg Asp Leu Ile Val
 385 390 395 400

Gly Asp Thr Asp Ser Ala Gln Ala Leu Gly Cys Leu Glu Leu Asp Glu
 405 410 415

Glu Asp Leu Ala Leu Cys Ser Phe Val Cys Pro Gly Lys Tyr Glu Tyr
 420 425 430

Gly Pro Leu Leu Arg Lys Val Leu Glu Thr Ile Glu Lys Glu Gly
 435 440 445

<210> 133

<211> 961

<212> DNA

<213> Neisseria meningitidis

<220>

<221> misc_feature

<222> (4)..(4)

<223> N= Unknown

<220>

<221> misc_feature

<222> (7)..(7)

<223> N= Unknown

<220>

<221> misc_feature

<222> (23)..(23)

<223> N= Unknown

<400> 133

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gcaattgggc	ccttatcaat	cagatttggt	acaagaagaa	aaagacattc	ggcattccaa	180
tgaaatcacg	cctttggaat	ataaaggatt	aatttgggct	ggcgtgggtg	ttgttgcctt	240
atccgcccta	ttggcttgga	gcatcgctcc	tgccgacggg	attttgcgtc	atcctgaaac	300
aggattgggt	tccggttcgc	cgtttttaaa	atcgattggt	gtttttat	tcttgttggt	360
tgcaactgcc	ggcattgttt	atggccgggt	aaccggaagt	ttgcgcggcg	aacaggaagt	420
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tgccgcacag	tttgtcgcat	tttttaattg	gacgaatatt	gggcaatata	ttgccgttaa	540
agggcgacg	ttcttaaaag	aagtcggcct	gggcggcagc	gtgttggtta	tcggttttat	600
tttaatttgt	gcttttatca	atctgatgat	aggctccgcc	tccgcgcaat	gggcggtaac	660
tgccgccgatt	ttcgctcccta	tgctgatggt	ggccggctac	gcgcccgaag	tcattcaagc	720
cgcttaccgc	atcggtgatt	ccgttaccaa	tattattacg	ccgatgatga	gttatttcgg	780
gctgattatg	gcgacgggtg	kcmmtacaa	aaaagatgcg	ggcgtgggta	cgctgattwc	840
tatgatgttg	ccgtattccg	ctttcttctt	gattgcgtgg	attgccttat	tctgcatttg	900
ggtatttggt	ttgggcctgc	ccgtcggtcc	cggcgcgccc	acattctatc	ccgcacctta	960

a

961

<210> 134
<211> 320

<212> PRT
<213> Neisseria meningitidis

<220>
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<222> (2)..(3)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (8)..(9)
<223> Xaa= any amino acid

<220>
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<222> (145)..(145)
<223> Xaa= any amino acid

<220>
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<222> (153)..(153)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (155)..(155)
<223> Xaa= any amino acid

<220>
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<222> (157)..(158)
<223> Xaa= any amino acid

<220>
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<222> (268)..(269)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (281)..(281)
<223> Xaa= any amino acid

<400> 134
Ala Xaa Xaa Ile Ile His Pro Xaa Xaa Val Val Gly Pro Glu Ala Asn
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Trp Phe Phe Met Val Ala Ser Thr Phe Val Ile Ala Leu Ile Gly Tyr
20 25 30

Phe Val Thr Glu Lys Ile Val Glu Pro Gln Leu Gly Pro Tyr Gln Ser

35	40	45
Asp Leu Ser Gln Glu Glu Lys Asp Ile Arg His Ser Asn Glu Ile Thr 50 55 60		
Pro Leu Glu Tyr Lys Gly Leu Ile Trp Ala Gly Val Val Phe Val Ala 65 70 75 80		
Leu Ser Ala Leu Leu Ala Trp Ser Ile Val Pro Ala Asp Gly Ile Leu 85 90 95		
Arg His Pro Glu Thr Gly Leu Val Ser Gly Ser Pro Phe Leu Lys Ser 100 105 110		
Ile Val Val Phe Ile Phe Leu Leu Phe Ala Leu Pro Gly Ile Val Tyr 115 120 125		
Gly Arg Val Thr Arg Ser Leu Arg Gly Glu Gln Glu Val Val Asn Ala 130 135 140		
Xaa Ala Glu Ser Met Ser Thr Leu Xaa Leu Xaa Leu Xaa Xaa Ile Phe 145 150 155 160		
Phe Ala Ala Gln Phe Val Ala Phe Phe Asn Trp Thr Asn Ile Gly Gln 165 170 175		
Tyr Ile Ala Val Lys Gly Ala Thr Phe Leu Lys Glu Val Gly Leu Gly 180 185 190		
Gly Ser Val Leu Phe Ile Gly Phe Ile Leu Ile Cys Ala Phe Ile Asn 195 200 205		
Leu Met Ile Gly Ser Ala Ser Ala Gln Trp Ala Val Thr Ala Pro Ile 210 215 220		
Phe Val Pro Met Leu Met Leu Ala Gly Tyr Ala Pro Glu Val Ile Gln 225 230 235 240		
Ala Ala Tyr Arg Ile Gly Asp Ser Val Thr Asn Ile Ile Thr Pro Met 245 250 255		
Met Ser Tyr Phe Gly Leu Ile Met Ala Thr Val Xaa Xaa Tyr Lys Lys 260 265 270		
Asp Ala Gly Val Gly Thr Leu Ile Xaa Met Met Leu Pro Tyr Ser Ala 275 280 285		
Phe Phe Leu Ile Ala Trp Ile Ala Leu Phe Cys Ile Trp Val Phe Val 290 295 300		
Leu Gly Leu Pro Val Gly Pro Gly Ala Pro Thr Phe Tyr Pro Ala Pro 305 310 315 320		

<210> 135
<211> 1569

<212> DNA

<213> *Neisseria meningitidis*

<400> 135

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tctgccgtcg gtgcgtatatt cggactatcc gtcccccgatc cgcgccctgt tgggtgcgaaa      180
ggacgtgccg atgacgggttt gattttacatt gtcagcctgc tcaatgccga cggtttttacc      240
aaaatcctga cgcataccgt taaaaatttc accgggtttcg cgccgttggg aacgggtgttg      300
gtttctttat tgggcgtggg gattgcggaa aaatcgggct tgatttccgc attaatgcgc      360
ttattgctca caaaatcgcc acgcaaaactc actactttta tggttgtttt tacagggatt      420
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ggcggttatt cggccaatct gttcttaggc acaatcgatc cgctcttgcc aggcattacc      600
caacaggcgg cgcaaactat ccaccccgac tacgtcgtag gccctgaagc caactgggtt      660
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gtcgaaccgc aattgggccc ttatcaatca gatttgtcac aagaagaaaa agacattcgg      780
cattccaatg aaatcacgcc tttggaatat aaaggattaa tttgggctgg cgtgggtgtt      840
gttgcccttat ccgccctatt ggcttggagc atcgtccctg ccgacgggtat tttgcgtcat      900
cctgaaacag gattgggttt cggttcgccg tttttaaaat cgattgttgt ttttattttc      960
ttgttgtttg cactgccggg cattgtttat ggccgggtaa cccgaagttt gcgcggcgaa      1020
caggaagtcg ttaatgcgat ggccgaatcg atgagtactc tggggcttta tttggtcatc      1080
atcttttttg ccgcacagtt tgcgcatttt ttttaattgga cgaatattgg gcaatatatt      1140
gccgttaaag gggcgacgtt cttaaaagaa gtcggcttgg gcggcagcgt gttgtttatc      1200
ggttttatatt taatttgtgc ttttatcaat ctgatgata gctccgcctc cgcgcaatgg      1260
gcggtaaactg cgccgatttt cgtccctatg ctgatgttgg ccggctacgc gcccgaaatc      1320
attcaagccg cttaccgcat cggtgattcc gttaccaata ttattacgcc gatgatgagt      1380
tatttcgggc tgattatggc gacggtgatc aaatacaaaa aagatgcggg cgtgggtacg      1440
ctgatttcta tgatgttgcc gtattccgct ttcttcttga ttgcgtggat tgccttattc      1500
tgcatttggg tatttgtttt gggcctgccc gtcgggtccc gcgcgcccac attctatccc      1560
gcaccttaa                                     1569
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<210> 136

<211> 522

<212> PRT

<213> *Neisseria meningitidis*

<400> 136

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Glu Trp Leu Gly Asn Met Leu Pro His Pro Val Thr Leu Phe Ile Ile
20           25           30
```

```
Phe Ile Val Leu Leu Leu Ile Ala Ser Ala Val Gly Ala Tyr Phe Gly
35           40           45
```

```
Leu Ser Val Pro Asp Pro Arg Pro Val Gly Ala Lys Gly Arg Ala Asp
50           55           60
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```
Asp Gly Leu Ile Tyr Ile Val Ser Leu Leu Asn Ala Asp Gly Phe Ile
65           70           75           80
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```
Lys Ile Leu Thr His Thr Val Lys Asn Phe Thr Gly Phe Ala Pro Leu
85           90           95
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Gly Thr Val Leu Val Ser Leu Leu Gly Val Gly Ile Ala Glu Lys Ser
 100 105 110

Gly Leu Ile Ser Ala Leu Met Arg Leu Leu Leu Thr Lys Ser Pro Arg
 115 120 125

Lys Leu Thr Thr Phe Met Val Val Phe Thr Gly Ile Leu Ser Asn Thr
 130 135 140

Ala Ser Glu Leu Gly Tyr Val Val Leu Ile Pro Leu Ser Ala Ile Ile
 145 150 155 160

Phe His Ser Leu Gly Arg His Pro Leu Ala Gly Leu Ala Ala Ala Phe
 165 170 175

Ala Gly Val Ser Gly Gly Tyr Ser Ala Asn Leu Phe Leu Gly Thr Ile
 180 185 190

Asp Pro Leu Leu Ala Gly Ile Thr Gln Gln Ala Ala Gln Ile Ile His
 195 200 205

Pro Asp Tyr Val Val Gly Pro Glu Ala Asn Trp Phe Phe Met Val Ala
 210 215 220

Ser Thr Phe Val Ile Ala Leu Ile Gly Tyr Phe Val Thr Glu Lys Ile
 225 230 235 240

Val Glu Pro Gln Leu Gly Pro Tyr Gln Ser Asp Leu Ser Gln Glu Glu
 245 250 255

Lys Asp Ile Arg His Ser Asn Glu Ile Thr Pro Leu Glu Tyr Lys Gly
 260 265 270

Leu Ile Trp Ala Gly Val Val Phe Val Ala Leu Ser Ala Leu Leu Ala
 275 280 285

Trp Ser Ile Val Pro Ala Asp Gly Ile Leu Arg His Pro Glu Thr Gly
 290 295 300

Leu Val Ser Gly Ser Pro Phe Leu Lys Ser Ile Val Val Phe Ile Phe
 305 310 315 320

Leu Leu Phe Ala Leu Pro Gly Ile Val Tyr Gly Arg Val Thr Arg Ser
 325 330 335

Leu Arg Gly Glu Gln Glu Val Val Asn Ala Met Ala Glu Ser Met Ser
 340 345 350

Thr Leu Gly Leu Tyr Leu Val Ile Ile Phe Phe Ala Ala Gln Phe Val
 355 360 365

Ala Phe Phe Asn Trp Thr Asn Ile Gly Gln Tyr Ile Ala Val Lys Gly
 370 375 380

Ala Thr Phe Leu Lys Glu Val Gly Leu Gly Gly Ser Val Leu Phe Ile
385 390 395 400

Gly Phe Ile Leu Ile Cys Ala Phe Ile Asn Leu Met Ile Gly Ser Ala
405 410 415

Ser Ala Gln Trp Ala Val Thr Ala Pro Ile Phe Val Pro Met Leu Met
420 425 430

Leu Ala Gly Tyr Ala Pro Glu Val Ile Gln Ala Ala Tyr Arg Ile Gly
435 440 445

Asp Ser Val Thr Asn Ile Ile Thr Pro Met Met Ser Tyr Phe Gly Leu
450 455 460

Ile Met Ala Thr Val Ile Lys Tyr Lys Lys Asp Ala Gly Val Gly Thr
465 470 475 480

Leu Ile Ser Met Met Leu Pro Tyr Ser Ala Phe Phe Leu Ile Ala Trp
485 490 495

Ile Ala Leu Phe Cys Ile Trp Val Phe Val Leu Gly Leu Pro Val Gly
500 505 510

Pro Gly Ala Pro Thr Phe Tyr Pro Ala Pro
515 520

<210> 137

<211> 1569

<212> DNA

<213> Neisseria meningitidis

<400> 137

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tctgccgcgc	gtgcgtattt	cggactatcc	gtccccgac	cgcgcctgt	tggtgcgaaa	180
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aaaatcctga	cgcataccgt	taaaaatttc	accgggtttcg	cgccggtggg	aacgggtgtg	300
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ttattgctca	caaaatctcc	acgcaaaact	actactttta	tggttgtttt	tacagggatt	420
ttatctaata	ccgctttctga	attgggctat	gtcgtcctaa	tccctttgtc	cgccatcatc	480
tttcattccc	tgggcgcgca	tccgcttgcc	ggctctggctg	cggctttcgc	cggcgtttcg	540
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caacaggcgc	cgc aaatcat	ccatcccgc	tacgtcgtag	gccctgaagc	caactgggtt	660
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caggaagtcg	ttaatgcgat	ggccgaatcg	atgagtactc	tggggcttta	tttggtcatc	1080
atcttttttg	ccgcacagtt	tgtcgcattt	tttaattgga	cgaatattgg	gcaatatatt	1140
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<210> 138
 <211> 522
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 138

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		20						25					30		
Phe	Ile	Val	Leu	Leu	Leu	Ile	Ala	Ser	Ala	Ala	Gly	Ala	Tyr	Phe	Gly
		35					40					45			
Leu	Ser	Val	Pro	Asp	Pro	Arg	Pro	Val	Gly	Ala	Lys	Gly	Arg	Ala	Asp
	50					55					60				
Asp	Gly	Leu	Ile	His	Val	Val	Ser	Leu	Leu	Asp	Ala	Asp	Gly	Leu	Ile
65				70						75				80	
Lys	Ile	Leu	Thr	His	Thr	Val	Lys	Asn	Phe	Thr	Gly	Phe	Ala	Pro	Leu
			85						90					95	
Gly	Thr	Val	Leu	Val	Ser	Leu	Leu	Gly	Val	Gly	Ile	Ala	Glu	Lys	Ser
		100						105					110		
Gly	Leu	Ile	Ser	Ala	Leu	Met	Arg	Leu	Leu	Leu	Thr	Lys	Ser	Pro	Arg
	115						120					125			
Lys	Leu	Thr	Thr	Phe	Met	Val	Val	Phe	Thr	Gly	Ile	Leu	Ser	Asn	Thr
	130					135					140				
Ala	Ser	Glu	Leu	Gly	Tyr	Val	Val	Leu	Ile	Pro	Leu	Ser	Ala	Ile	Ile
145				150						155				160	
Phe	His	Ser	Leu	Gly	Arg	His	Pro	Leu	Ala	Gly	Leu	Ala	Ala	Ala	Phe
			165					170						175	
Ala	Gly	Val	Ser	Gly	Gly	Tyr	Ser	Ala	Asn	Leu	Phe	Leu	Gly	Thr	Ile
		180						185					190		
Asp	Pro	Leu	Leu	Ala	Gly	Ile	Thr	Gln	Gln	Ala	Ala	Gln	Ile	Ile	His
	195						200					205			
Pro	Asp	Tyr	Val	Val	Gly	Pro	Glu	Ala	Asn	Trp	Phe	Phe	Met	Val	Ala
	210					215					220				
Ser	Thr	Phe	Val	Ile	Ala	Leu	Ile	Gly	Tyr	Phe	Val	Thr	Glu	Lys	Ile
225				230						235				240	

Val Glu Pro Gln Leu Gly Pro Tyr Gln Ser Asp Leu Ser Gln Glu Glu
 245 250 255
 Lys Asp Ile Arg His Ser Asn Glu Ile Thr Pro Leu Glu Tyr Lys Gly
 260 265 270
 Leu Ile Trp Ala Gly Val Val Phe Val Ala Leu Ser Ala Leu Leu Ala
 275 280 285
 Trp Ser Ile Val Pro Ala Asp Gly Ile Leu Arg His Pro Glu Thr Gly
 290 295 300
 Leu Val Ser Gly Ser Pro Phe Leu Lys Ser Ile Val Val Phe Ile Phe
 305 310 315 320
 Leu Leu Phe Ala Leu Pro Gly Ile Val Tyr Gly Arg Val Thr Arg Ser
 325 330 335
 Leu Arg Gly Glu Gln Glu Val Val Asn Ala Met Ala Glu Ser Met Ser
 340 345 350
 Thr Leu Gly Leu Tyr Leu Val Ile Ile Phe Phe Ala Ala Gln Phe Val
 355 360 365
 Ala Phe Phe Asn Trp Thr Asn Ile Gly Gln Tyr Ile Ala Val Lys Gly
 370 375 380
 Ala Thr Phe Leu Lys Glu Val Gly Leu Gly Gly Ser Val Leu Phe Ile
 385 390 395 400
 Gly Phe Ile Leu Ile Cys Ala Phe Ile Asn Leu Met Ile Gly Ser Ala
 405 410 415
 Ser Ala Gln Trp Ala Val Thr Ala Pro Ile Phe Val Pro Met Leu Met
 420 425 430
 Leu Ala Gly Tyr Ala Pro Glu Val Ile Gln Ala Ala Tyr Arg Ile Gly
 435 440 445
 Asp Ser Val Thr Asn Ile Ile Thr Pro Met Met Ser Tyr Phe Gly Leu
 450 455 460
 Ile Met Ala Thr Val Ile Lys Tyr Lys Lys Asp Ala Gly Val Gly Thr
 465 470 475 480
 Leu Ile Ser Met Met Leu Pro Tyr Ser Ala Phe Phe Leu Ile Ala Trp
 485 490 495
 Ile Ala Leu Phe Cys Ile Trp Val Phe Val Leu Gly Leu Pro Val Gly
 500 505 510
 Pro Gly Ala Pro Thr Phe Tyr Pro Ala Pro
 515 520

<210> 139

<211> 1569
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 139
 atgagtcaaa ccgacgcgcg tcgtagcgga cgattttttac gcacagtcga atggctgggc 60
 aatatgttgc cgcacccggt tacgcttttt attattttca ttgtgttatt gctgattgcc 120
 tctgccgtcg gtgcgtatct cggactatcc gtccccgac cgcgctcctgt tggggcgaaa 180
 ggacgtgccg atgacgggtt gattcacgtt gtcagcctgc tcgatgccga cggtttgatc 240
 aaaatcctga cgcataccgt taaaaatttc accggtttcg cgccgttggg aacgggtgtt 300
 gtttctttat tgggcgtggg gattgcggaa aaatcgggct tgatttcgcg attaatgcgc 360

ttattgctca caaaatcccc acgcaaactc actactttta tggttgtttt tacagggatt 420
 ttatccaata cggcttctga attgggctat gtcgtcctaa tccctttgtc cgccgtcatc 480
 tttcattcgc tcggccgcca tccgcttgcc ggtttggctg cggctttcgc cggcggttcg 540
 ggcggttatt cggccaatct gttcttaggc acaatcgatc cgctcttggc aggcataccc 600
 caacaggcgg cgcaaatcat ccatcccgac tacgtcgtag gccctgaagc caactggttt 660
 tttatggcag ccagtacgtt tgtgattgct ttgattgggt attttgttac tgaaaaaatc 720
 gtgcaaccgc aattgggccc ttatcaatca gatttgtcac aagaagaaaa agacattcgg 780
 cattccaatg aaatcacgcc tttggaatat aaaggattaa tttgggcagg cgtggtgttt 840
 gttgccttat ccgccctatt ggcttggagc atcgccctg ccgacgggat tttgcgtcat 900
 cctgaaacag gattgggtgc cggttcgccg tttttaaaat cgattgttgt ttttattttc 960
 ttgttgtttg cgctgccggg cattgtttat ggccggataa cccgaagtgt gcgcggcgaa 1020
 cgggaagtgc ttaatgcgat ggccgaatcg atgagtactt tgggacttta tttggtcac 1080
 atcttttttg ccgcacagtt tgtcgcatct ttaattgga cgaatattgg gcaatatatt 1140
 gccgttaaag gggcggtgtt cttaaaagaa gtcggcttgg gcggcagtg gttgtttatc 1200
 ggttttatct taatttgtgc ttttatcaat ctgatgatag gctccgcctc cgcgcaatgg 1260
 gcggtaactg cgccgatttt cgtccctatg ctgatgttgg ccggctacgc gcccgaaagtc 1320
 attcaagccg cttaccgcat cggtgattcc gttaccaata ttattacgcg gatgatgagt 1380
 tatttcgggc tgattatggc gacggtaatc aaatacaaaa aagatgcggg cgtaggcacg 1440
 ctgattttcta tgatgttgcc gtattccgct ttctttctta ttgcatggat cgccttattc 1500
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 gtgccttaa 1569

<210> 140
 <211> 522
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 140
 Met Ser Gln Thr Asp Ala Arg Arg Ser Gly Arg Phe Leu Arg Thr Val
 1 5 10 15
 Glu Trp Leu Gly Asn Met Leu Pro His Pro Val Thr Leu Phe Ile Ile
 20 25 30
 Phe Ile Val Leu Leu Leu Ile Ala Ser Ala Val Gly Ala Tyr Phe Gly
 35 40 45
 Leu Ser Val Pro Asp Pro Arg Pro Val Gly Ala Lys Gly Arg Ala Asp
 50 55 60
 Asp Gly Leu Ile His Val Val Ser Leu Leu Asp Ala Asp Gly Leu Ile
 65 70 75 80
 Lys Ile Leu Thr His Thr Val Lys Asn Phe Thr Gly Phe Ala Pro Leu

	85		90		95
Gly Thr Val Leu Val Ser Leu Leu Gly Val Gly Ile Ala Glu Lys Ser	100		105		110
Gly Leu Ile Ser Ala Leu Met Arg Leu Leu Leu Thr Lys Ser Pro Arg	115		120		125
Lys Leu Thr Thr Phe Met Val Val Phe Thr Gly Ile Leu Ser Asn Thr	130		135		140
Ala Ser Glu Leu Gly Tyr Val Val Leu Ile Pro Leu Ser Ala Val Ile					
	145		150		155
Phe His Ser Leu Gly Arg His Pro Leu Ala Gly Leu Ala Ala Ala Phe	165		170		175
Ala Gly Val Ser Gly Gly Tyr Ser Ala Asn Leu Phe Leu Gly Thr Ile	180		185		190
Asp Pro Leu Leu Ala Gly Ile Thr Gln Gln Ala Ala Gln Ile Ile His	195		200		205
Pro Asp Tyr Val Val Gly Pro Glu Ala Asn Trp Phe Phe Met Ala Ala	210		215		220
Ser Thr Phe Val Ile Ala Leu Ile Gly Tyr Phe Val Thr Glu Lys Ile	225		230		235
Val Glu Pro Gln Leu Gly Pro Tyr Gln Ser Asp Leu Ser Gln Glu Glu	245		250		255
Lys Asp Ile Arg His Ser Asn Glu Ile Thr Pro Leu Glu Tyr Lys Gly	260		265		270
Leu Ile Trp Ala Gly Val Val Phe Val Ala Leu Ser Ala Leu Leu Ala	275		280		285
Trp Ser Ile Val Pro Ala Asp Gly Ile Leu Arg His Pro Glu Thr Gly	290		295		300
Leu Val Ala Gly Ser Pro Phe Leu Lys Ser Ile Val Val Phe Ile Phe	305		310		315
Leu Leu Phe Ala Leu Pro Gly Ile Val Tyr Gly Arg Ile Thr Arg Ser	325		330		335
Leu Arg Gly Glu Arg Glu Val Val Asn Ala Met Ala Glu Ser Met Ser	340		345		350
Thr Leu Gly Leu Tyr Leu Val Ile Ile Phe Phe Ala Ala Gln Phe Val	355		360		365
Ala Phe Phe Asn Trp Thr Asn Ile Gly Gln Tyr Ile Ala Val Lys Gly	370		375		380

Ala Val Phe Leu Lys Lys Phe Arg Leu Gly Gly Ser Val Leu Phe Ile
 385 390 395 400

Gly Phe Ile Leu Ile Cys Ala Phe Ile Asn Leu Met Ile Gly Ser Ala
 405 410 415

Ser Ala Gln Trp Ala Val Thr Ala Pro Ile Phe Val Pro Met Leu Met
 420 425 430

Leu Ala Gly Asn Ala Pro Gln Val Ile Gln Ala Ala Tyr Arg Ile Gly
 435 440 445

Asp Ser Val Thr Asn Ile Ile Thr Pro Met Met Ser Tyr Phe Gly Leu
 450 455 460

Ile Met Ala Thr Val Ile Lys Tyr Lys Lys Asp Ala Gly Val Gly Thr
 465 470 475 480

Leu Ile Ser Met Met Leu Pro Tyr Ser Ala Phe Phe Leu Ile Ala Trp
 485 490 495

Ile Ala Leu Phe Cys Ile Trp Val Phe Val Leu Gly Leu Pro Val Gly
 500 505 510

Pro Gly Thr Pro Thr Phe Tyr Pro Val Pro
 515 520

<210> 141
 <211> 503
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (20)..(20)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (22)..(22)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (459)..(459)
 <223> N= Unknown

<400> 141
 acagccggcg cagcaggttn cncggtcttc gttttcgtaa cggacagtca ggtggagggtg 60
 ttcgggaaca tccagaccgc agtggaaaca ggtttttttc atggcatttc ggtttcgtct 120
 gtgtttggtg cggcggcaca agactcggca atggcttcgc gcagtgcgtc tataccggta 180
 ttttcagcaa cggaaatgcg gacggcggca atttttcccg cagcgtcgcg ccatatgcc 240
 gtgttttgtt cttcagacgg cagcaggtcg gttttgttgt acaccttgat gcacggaata 300
 tcgccggcat ggatttcttg cagtaacgttt tccacgtctt caatctgctg tccgctgttc 360

ggagcggcgg catcgacgac gtgcagcagc acatcggtt gcgcgggttc ttccagcgtg	420
gcggaaaagg cggaaatcag tttgtgcggc agatygctna cgaatccgac ggtatcggtc	480
aggataatgc tgcattcggg act	503

<210> 142
 <211> 167
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (7)..(8)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (152)..(152)
 <223> Xaa= any amino acid

<400> 142
 Thr Ala Gly Ala Ala Gly Xaa Xaa Val Phe Val Phe Val Thr Asp Ser
 1 5 10 15
 Gln Val Glu Val Phe Gly Asn Ile Gln Thr Ala Val Glu Thr Gly Phe
 20 25 30
 Phe His Gly Ile Ser Val Ser Ser Val Phe Gly Ala Ala Ala Gln Asp
 35 40 45
 Ser Ala Met Ala Ser Arg Ser Ala Ser Ile Pro Val Phe Ser Ala Thr
 50 55 60
 Glu Met Arg Thr Ala Ala Ile Phe Pro Ala Ala Ser Arg His Met Pro
 65 70 75 80
 Val Phe Cys Ser Ser Asp Gly Ser Arg Ser Val Leu Leu Tyr Thr Leu
 85 90 95
 Met His Gly Ile Ser Pro Ala Trp Ile Ser Cys Ser Thr Phe Ser Thr
 100 105 110
 Ser Ser Ile Cys Cys Pro Leu Phe Gly Ala Ala Ala Ser Thr Thr Cys
 115 120 125
 Ser Ser Thr Ser Ala Cys Ala Val Ser Ser Ser Val Ala Glu Lys Ala
 130 135 140
 Glu Ile Ser Leu Cys Gly Arg Xaa Leu Thr Asn Pro Thr Val Ser Val
 145 150 155 160
 Arg Ile Met Leu His Ser Gly
 165

<210> 143
 <211> 1149

<212> DNA

<213> *Neisseria meningitidis*

<400> 143

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gaacatcatc gtctgcatca tccccagccc ggcaacggcg aggcggacga tgtattgttt      120
gcgttctttt tggttggcgg cttcgatttt ttgcgcgtca taggggtcgg cgggtgtagcc      180
tatctgcctg attttcaaca gaatgtcgga aaggcggatt ttgccgtcgt cccagacgac      240
gcggcagcgg tgcgtgctgt aattgaggtc gatgcggacg atgccgtctg tacgcaaaag      300
ctgctgttcg atcagccaga cgcaggcggc gcagggtgat cgcgccagca ttaaaaccgc      360
ctcgcgcgtg ccgccgtggg tttccacaaa gtcggactgg acttcgggca ggtcgtacag      420
gcggatttgg tgcaggattt cttggggcgg cagctcggtt ttttgcgcgt cggcgggtgcg      480
ttgtttgtaa taactgccc aagccgcgtc aataatgctt tgtgcgactg cctgacaacc      540
ggcgcagcag gtttcgcggg cttcgttttc gtaacggacg gtcagatgca ggttttcggg      600
aacgtccagc ccgcagtgga aacaggtttt tttcatggca tttcggtttc gtctgtgttt      660
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ggtgcggcgg cacaatactc ggcaatggct tcgcgcagtg cgtctatacc ggtattttca      720
gcaacggaaa tgcggacggc ggcaattttt cccgcagcgt cgcgccatat gcccggtgttt      780
tggtcttcag acggcagcag gtcggttttg ttgtacacct tgatgcacgg aatatcgccg      840
gcattggatt cttgcagtac gttttccacg tcttcaatct gctgtccgct gttcggagcg      900
gcggcatcga cgacgtgcag cagcacatcg gcttgccggg tttcttccag cgtggcggaa      960
aaggcggaaa tcagtttgtg cggcagatcg ctgacgaatc cgacggatc ggtcaggata     1020
atgctgcatt cgggactgat gtacagccgc cgcgcgcgtg tgcgagtggt ggcgaaaagc     1080
tggtctttcg catatatgcc cgacttggtc agccggttga acagactgga tttgccgaca     1140
ttggtatag                                     1149
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<210> 144

<211> 381

<212> PRT

<213> *Neisseria meningitidis*

<400> 144

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Met Glu Asp Leu Gln Glu Ile Gly Phe Asp Val Ala Ala Val Lys Val
1              5              10              15

Gly Arg Gln Arg Glu His His Arg Leu His His Pro Gln Pro Gly Asn
20              25              30

Gly Glu Ala Asp Asp Val Leu Phe Ala Phe Phe Leu Val Gly Gly Phe
35              40              45

Asp Phe Leu Arg Val Ile Gly Cys Gly Gly Val Ala Tyr Leu Pro Asp
50              55              60

Phe Gln Gln Asn Val Gly Lys Ala Asp Phe Ala Val Val Pro Asp Asp
65              70              75              80

Ala Ala Ala Val Arg Ala Val Ile Glu Val Asp Ala Asp Asp Ala Val
85              90              95

Cys Thr Gln Lys Leu Leu Phe Asp Gln Pro Asp Ala Gly Gly Ala Gly
100             105             110

Asp Ala Ala Glu His Asn Arg Leu Ala Arg Ala Ala Val Gly Phe His
115             120             125
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Lys Val Gly Leu Asp Phe Gly Gln Val Val Gln Ala Asp Leu Val Glu
 130 135 140
 Asp Phe Leu Gly Arg Gln Leu Gly Phe Leu Arg Val Gly Gly Ala Leu
 145 150 155 160
 Phe Val Ile Thr Ala Gln Ala Arg Val Asn Asn Ala Leu Cys Asp Cys
 165 170 175
 Leu Thr Thr Gly Ala Ala Gly Phe Ala Val Phe Val Phe Val Thr Asp
 180 185 190
 Gly Gln Met Gln Val Phe Gly Asn Val Gln Pro Ala Val Glu Thr Gly
 195 200 205
 Phe Phe His Gly Ile Ser Val Ser Ser Val Phe Gly Ala Ala Ala Gln
 210 215 220
 Tyr Ser Ala Met Ala Ser Arg Ser Ala Ser Ile Pro Val Phe Ser Ala
 225 230 235 240
 Thr Glu Met Arg Thr Ala Ala Ile Phe Pro Ala Ala Ser Arg His Met
 245 250 255
 Pro Val Phe Cys Ser Ser Asp Gly Ser Arg Ser Val Leu Leu Tyr Thr
 260 265 270
 Leu Met His Gly Ile Ser Pro Ala Trp Ile Ser Cys Ser Thr Phe Ser
 275 280 285
 Thr Ser Ser Ile Cys Cys Pro Leu Phe Gly Ala Ala Ala Ser Thr Thr
 290 295 300
 Cys Ser Ser Thr Ser Ala Cys Ala Val Ser Ser Ser Val Ala Glu Lys
 305 310 315 320
 Ala Glu Ile Ser Leu Cys Gly Arg Ser Leu Thr Asn Pro Thr Val Ser
 325 330 335
 Val Arg Ile Met Leu His Ser Gly Leu Met Tyr Ser Arg Arg Ala Val
 340 345 350
 Val Ser Ser Val Ala Lys Ser Trp Ser Phe Ala Tyr Met Pro Asp Leu
 355 360 365
 Val Ser Arg Leu Asn Arg Leu Asp Leu Pro Thr Leu Val
 370 375 380

<210> 145
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature

<222> (1)..(8)
 <223> N= Unknown

<400> 145
 nnnnnnnnn

8

<210> 146
 <211> 382
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 146
 Met Glu Asp Leu Gln Glu Ile Gly Phe Asp Val Ala Ala Val Lys Val
 1 5 10 15
 Gly Arg Gln Arg Glu His His Arg Leu His His Thr Gln Ser Gly Asn
 20 25 30
 Gly Lys Ala Asp Asp Val Leu Phe Ala Phe Phe Leu Val Gly Gly Phe
 35 40 45
 Asp Phe Leu Arg Val Ile Gly Cys Gly Gly Val Ala Cys Leu Pro Asp
 50 55 60
 Phe Gln Gln Asn Val Gly Glu Ala Asp Phe Ala Val Val Pro Asp Asp
 65 70 75 80
 Ala Ala Ala Val Arg Ala Val Ile Glu Val Asp Ala Asp Asp Ala Val
 85 90 95
 Cys Ala Gln Lys Leu Leu Phe Asp Gln Pro Asp Ala Gly Gly Ala Gly
 100 105 110
 Asn Ala Ala Glu His Gln His Cys Phe Val Arg Ala Ile Met Gly Phe
 115 120 125
 His Lys Val Gly Leu Asp Phe Gly Gln Val Val Gln Ala Asp Leu Val
 130 135 140
 Glu Asp Phe Leu Gly Arg Gln Phe Gly Phe Phe Arg Val Gly Gly Ala
 145 150 155 160
 Ser Phe Val Ile Thr Ala Gln Ala Gly Ile Asp Asp Ala Leu Cys Asp
 165 170 175
 Cys Leu Thr Ala Asp Ala Ala Gly Phe Ala Val Phe Ala Phe Val Ala
 180 185 190
 Asp Gly Gln Met Gln Val Phe Gly Asn Val Gln Pro Ala Val Glu Thr
 195 200 205
 Gly Phe Phe His Gly Ile Ser Val Ser Ser Val Phe Gly Ala Ala Ala
 210 215 220
 Gln Tyr Ser Ala Met Ala Ser Arg Ser Ala Ser Ile Pro Val Phe Ser
 225 230 235 240

Ala Thr Glu Met Arg Thr Ala Ala Ile Phe Pro Ala Ala Ser Arg His
245 250 255

Met Pro Val Phe Cys Ser Ser Asp Gly Ser Arg Ser Val Leu Leu Tyr
260 265 270

Thr Leu Met His Gly Ile Ser Trp Ala Trp Ile Ser Cys Ser Thr Phe
275 280 285

Ser Thr Ser Ser Ile Cys Cys Pro Leu Phe Arg Ala Ala Ala Ser Thr
290 295 300

Thr Cys Ser Ser Thr Ser Ala Cys Thr Val Ser Ser Lys Val Ala Glu
305 310 315 320

Lys Ala Glu Ile Ser Leu Cys Gly Arg Ser Leu Thr Asn Pro Thr Val
325 330 335

Ser Val Arg Ile Met Leu His Ala Gly Leu Met Tyr Ser Arg Arg Ala
340 345 350

Val Val Ser Arg Val Ala Lys Ser Trp Ser Phe Ala Tyr Met Pro Asp
355 360 365

Leu Val Ser Arg Leu Asn Arg Leu Asp Leu Pro Thr Leu Val
370 375 380

<210> 147
<211> 542
<212> DNA
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (38)..(38)
<223> N= Unknown

<220>
<221> misc_feature
<222> (254)..(254)
<223> N= Unknown

<220>
<221> misc_feature
<222> (356)..(356)
<223> N= Unknown

<220>
<221> misc_feature
<222> (458)..(458)
<223> N= Unknown

<400> 147
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ctttatggca cgctgattgc gggtattgtg atgattttga tgccgaactc gggcagcttc 120

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ggtttcgggt atgcgtcgct ggcgggtttg tcgttcggcg cgctgatgat tgcgctgtta 180
gacgtgtcgt caaatatggc gatgcagcgc ttttaagatga tggtcggcga catgggtcaac 240
gaggagcaga aaantacgcc tacgggattc aaagtttctt agcaaatacg ggcgcggtcg 300
tggcggcgat tctgccgttt gtgtttgcgt atatcggttt ggcgaacacc gccganaaag 360
gcgttgtgcc gcagaccgtg gtcgtggcgt tttatgtggg tgcggcgttg ctggtgatta 420
ccagcgcgtt cacgattttc aaagtgaagg aatacgancc ggaaacctac gcccgttacc 480
acggcatcga tgtcgccgcg aatcaggaaa aagccaactg gatcgactc ttaaaaccgc 540
gc

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<210> 148
<211> 181
<212> PRT
<213> Neisseria meningitidis

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<220>
<221> misc_feature
<222> (13)..(13)
<223> Xaa= any amino acid

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<220>
<221> misc_feature
<222> (85)..(85)
<223> Xaa= any amino acid

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<220>
<221> misc_feature
<222> (119)..(119)
<223> Xaa= any amino acid

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<220>
<221> misc_feature
<222> (153)..(153)
<223> Xaa= any amino acid

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<220>
<221> misc_feature
<222> (180)..(180)
<223> Xaa= any amino acid

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<400> 148
Gly His Tyr Ser Asp Arg Thr Trp Lys Pro Arg Leu Xaa Gly Arg Arg
1          5          10          15

Leu Pro Tyr Leu Leu Tyr Gly Thr Leu Ile Ala Val Ile Val Met Ile
20          25          30

Leu Met Pro Asn Ser Gly Ser Phe Gly Phe Gly Tyr Ala Ser Leu Ala
35          40          45

Ala Leu Ser Phe Gly Ala Leu Met Ile Ala Leu Leu Asp Val Ser Ser
50          55          60

Asn Met Ala Met Gln Pro Phe Lys Met Met Val Gly Asp Met Val Asn
65          70          75          80

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Glu Glu Gln Lys Xaa Tyr Ala Tyr Gly Ile Gln Ser Phe Leu Ala Asn
 85 90 95
 Thr Gly Ala Val Val Ala Ala Ile Leu Pro Phe Val Phe Ala Tyr Ile
 100 105 110
 Gly Leu Ala Asn Thr Ala Xaa Lys Gly Val Val Pro Gln Thr Val Val
 115 120 125
 Val Ala Phe Tyr Val Gly Ala Ala Leu Leu Val Ile Thr Ser Ala Phe
 130 135 140
 Thr Ile Phe Lys Val Lys Glu Tyr Xaa Pro Glu Thr Tyr Ala Arg Tyr
 145 150 155 160
 His Gly Ile Asp Val Ala Ala Asn Gln Glu Lys Ala Asn Trp Ile Ala
 165 170 175
 Leu Leu Lys Xaa Ala
 180

<210> 149
 <211> 1356
 <212> DNA
 <213> Neisseria meningitidis

<400> 149
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 atttggatgc tcagtttcgg ctttctcggc gttcagacgg cttttaccct gcaaagctcg 120
 caaatgagcc gcatttttca aacgctaggc gcagaccgcg acaatttggg ctgggtttttc 180
 atcctgccgc cgctggcggg gatgctggtg cagccgattg tcggccatta ctccgaccgc 240
 acttgggaagc cgcgttttgg cgccgcgcgt ctgccgtatc tgctttatgg cacgctgatt 300
 gcggttattg tgatgatttt gatgccgaac tcgggcagct tcggtttcgg ctatgcgtcg 360
 ctggcggcct tgctgttcgg cgcgctgatg attgcgctgt tagacgtgtc gtcaaataatg 420
 gcgatgcagc cgtttaagat gatggtcggc gacatggtca acgaggagca gaaaggctac 480
 gcctacggga ttcaaagttt cttagcaaat acgggcgcgg tcgtggcggc gattctgccg 540
 tttgtgtttg cgtatatcgg tttggcgaac accgcccaga aaggcgttgt gccgcagacc 600
 gtggtcgtgg cgtttttatg ggggtgcggcg ttgctggtga ttaccagcgc gttcacgatt 660
 ttcaaagtga aggaatacga tccggaaaacc tacgcccggt accacggcat cgatgtcgcc 720
 gcgaatcagg aaaaagccaa ctggatcgaa ctcttgaaaa ccgcgcctaa ggcgtttttg 780
 acggttactt tggtgcaatt cttctgctgg ttgccttcc aatatatgtg gacttactcg 840
 gcaggcgcga ttgcggaaaa cgtctggcac accaccgatg cgtcttccgt aggttatcag 900
 gaggcgggta actggtacgg cgttttggcg gcggtgcagt cggttgcggc ggtgatttgt 960
 tcgtttgtat tggcgaaagt gccgaataaa taccataagg cgggttattt cggctgtttg 1020
 gctttgggcg cgctcggcct tttctccgtt ttcttcatcg gcaaccaata cgcgctggtg 1080
 ttgtcttata ccttaatcgg catcgcttgg gcgggcatta tcacttatcc gctgacgatt 1140
 gtgaccaacg ccttgctcggg caagcatatg ggcacttact tgggcttgtt taacggctct 1200
 atctgtatgc ctcaaatacgt cgcttcgctg ttgagtttcg tgcttttccc tatgctgggc 1260
 ggcttgacag ccactatggt cttggtaggg ggcgtcgtcc tgctgctggg cgcgttttcc 1320
 gtgttcctga ttaaagaaac acacggcggg gtttga 1356

<210> 150
 <211> 451
 <212> PRT
 <213> Neisseria meningitidis

<400> 150

Met Ser Glu Tyr Thr Pro Gln Thr Ala Lys Gln Gly Leu Pro Ala Leu
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Ala Lys Ser Thr Ile Trp Met Leu Ser Phe Gly Phe Leu Gly Val Gln
20 25 30

Thr Ala Phe Thr Leu Gln Ser Ser Gln Met Ser Arg Ile Phe Gln Thr
35 40 45

Leu Gly Ala Asp Pro His Asn Leu Gly Trp Phe Phe Ile Leu Pro Pro
50 55 60

Leu Ala Gly Met Leu Val Gln Pro Ile Val Gly His Tyr Ser Asp Arg
65 70 75 80

Thr Trp Lys Pro Arg Leu Gly Gly Arg Arg Leu Pro Tyr Leu Leu Tyr
85 90 95

Gly Thr Leu Ile Ala Val Ile Val Met Ile Leu Met Pro Asn Ser Gly
100 105 110

Ser Phe Gly Phe Gly Tyr Ala Ser Leu Ala Ala Leu Ser Phe Gly Ala
115 120 125

Leu Met Ile Ala Leu Leu Asp Val Ser Ser Asn Met Ala Met Gln Pro
130 135 140

Phe Lys Met Met Val Gly Asp Met Val Asn Glu Glu Gln Lys Gly Tyr
145 150 155 160

Ala Tyr Gly Ile Gln Ser Phe Leu Ala Asn Thr Gly Ala Val Val Ala
165 170 175

Ala Ile Leu Pro Phe Val Phe Ala Tyr Ile Gly Leu Ala Asn Thr Ala
180 185 190

Glu Lys Gly Val Val Pro Gln Thr Val Val Val Ala Phe Tyr Val Gly
195 200 205

Ala Ala Leu Leu Val Ile Thr Ser Ala Phe Thr Ile Phe Lys Val Lys
210 215 220

Glu Tyr Asp Pro Glu Thr Tyr Ala Arg Tyr His Gly Ile /Asp Val Ala
225 230 235 240

Ala Asn Gln Glu Lys Ala Asn Trp Ile Glu Leu Leu Lys Thr Ala Pro
245 250 255

Lys Ala Phe Trp Thr Val Thr Leu Val Gln Phe Phe Cys Trp Phe Ala
260 265 270

Phe Gln Tyr Met Trp Thr Tyr Ser Ala Gly Ala Ile Ala Glu Asn Val
275 280 285

Trp His Thr Thr Asp Ala Ser Ser Val Gly Tyr Gln Glu Ala Gly Asn

290 295 300
 Trp Tyr Gly Val Leu Ala Ala Val Gln Ser Val Ala Ala Val Ile Cys
 305 310 315 320
 Ser Phe Val Leu Ala Lys Val Pro Asn Lys Tyr His Lys Ala Gly Tyr
 325 330 335
 Phe Gly Cys Leu Ala Leu Gly Ala Leu Gly Phe Phe Ser Val Phe Phe
 340 345 350
 Ile Gly Asn Gln Tyr Ala Leu Val Leu Ser Tyr Thr Leu Ile Gly Ile
 355 360 365
 Ala Trp Ala Gly Ile Ile Thr Tyr Pro Leu Thr Ile Val Thr Asn Ala
 370 375 380
 Leu Ser Gly Lys His Met Gly Thr Tyr Leu Gly Leu Phe Asn Gly Ser
 385 390 395 400
 Ile Cys Met Pro Gln Ile Val Ala Ser Leu Leu Ser Phe Val Leu Phe
 405 410 415

 Pro Met Leu Gly Gly Leu Gln Ala Thr Met Phe Leu Val Gly Gly Val
 420 425 430
 Val Leu Leu Leu Gly Ala Phe Ser Val Phe Leu Ile Lys Glu Thr His
 435 440 445

 Gly Gly Val
 450

<210> 151
 <211> 1356
 <212> DNA
 <213> Neisseria meningitidis

<400> 151
 atgtcggaaat atacgcctca aacagcaaaa caaggtttgc ccgcgctggc aaaaagcacg 60
 atttggatgc tcagtttcgg ctttctcggc gttcagacgg cctttaccct gcaaagctcg 120
 cagatgagcc gcatcttcca gacgctcggg gccgatccgc acagcctcgg ctggttcttt 180
 atcctgccgc cgctggcggg gatgctggtg cagccgattg tcggccatta ctccgaccgc 240
 acttggaagc cgcgtttggg cggccgccgt ctgccgtatc tgctttatgg cacgctgatt 300
 gcggttattg tgatgatttt gatgccgaac tcgggcagct tcggtttcgg ctatgcgtcg 360
 ctggcggctt tgcgttcgg cgcgctgatg attgcgctgt tagacgtgtc gtcaaatatg 420
 gcgatgcagc cgtttaagat gatggtcggc gacatggtca acgaggagca gaaaggctac 480
 gcctacggga ttcaaagttt cttagcgaat acgggcgcgg tcgtggcggc gattctgccg 540
 tttgtgtttg cgtatatcgg tttggcgaac accgccgaga aaggcgttgt gccgcagacc 600
 gtggtcgtgg cgttttatgt ggggtcggcg ttgctggtga ttaccagcgc gttcacgatt 660
 ttcaaagtga aggaatacaa tccggaacc tacgccggtt accacggcat cgatgtcgcc 720
 gcgaatcagg aaaaagccaa ctggatcgaa ctcttgaaaa ccgcgcctaa ggcgttttgg 780
 acggttactt tgggtgcaatt cttctgctgg ttgccttcc aatatatgtg gacttactcg 840
 gcaggcgcta ttgcggaaaa cgtctggcac accaccgatg cgtcttccgt aggttatcag 900
 gaggcgggta actggtacgg cgttttggcg gcggtgcagt cgggtgcggc ggtgatttgt 960
 tcgtttgtat tggcgaaagt gccgaataaa taccataagg cgggttattt cggctgtttg 1020
 gctttgggcg cgctcggctt tttctccgtt ttcttcatcg gcaaccaata cgcgctggtg 1080

ttgtcttata ccttaatcgg catcgcttgg gcgggcatta tcacttatcc gctgacgatt	1140
gtgaccaacg ccttgctcgg caagcatatg ggcacttact tgggcctggt taacggctct	1200
atctgtatgc cgcaaactgt cgcttcgctg ttgagtttgc tgcttttccc tatgctgggc	1260
ggcttgacagg ccactatggt cttggtaggg ggcgtcgtcc tgctgctggg cgcgttttcc	1320
gtgttcctga ttaaagaaac acacggcggg gtttga	1356

<210> 152
 <211> 451
 <212> PRT
 <213> Neisseria meningitidis

<400> 152
 Met Ser Glu Tyr Thr Pro Gln Thr Ala Lys Gln Gly Leu Pro Ala Leu
 1 5 10 15
 Ala Lys Ser Thr Ile Trp Met Leu Ser Phe Gly Phe Leu Gly Val Gln
 20 25 30
 Thr Ala Phe Thr Leu Gln Ser Ser Gln Met Ser Arg Ile Phe Gln Thr
 35 40 45
 Leu Gly Ala Asp Pro His Ser Leu Gly Trp Phe Phe Ile Leu Pro Pro
 50 55 60
 Leu Ala Gly Met Leu Val Gln Pro Ile Val Gly His Tyr Ser Asp Arg
 65 70 75 80
 Thr Trp Lys Pro Arg Leu Gly Gly Arg Arg Leu Pro Tyr Leu Leu Tyr
 85 90 95
 Gly Thr Leu Ile Ala Val Ile Val Met Ile Leu Met Pro Asn Ser Gly
 100 105 110
 Ser Phe Gly Phe Gly Tyr Ala Ser Leu Ala Ala Leu Ser Phe Gly Ala
 115 120 125
 Leu Met Ile Ala Leu Leu Asp Val Ser Ser Asn Met Ala Met Gln Pro
 130 135 140
 Phe Lys Met Met Val Gly Asp Met Val Asn Glu Glu Gln Lys Gly Tyr
 145 150 155 160
 Ala Tyr Gly Ile Gln Ser Phe Leu Ala Asn Thr Gly Ala Val Val Ala
 165 170 175
 Ala Ile Leu Pro Phe Val Phe Ala Tyr Ile Gly Leu Ala Asn Thr Ala
 180 185 190
 Glu Lys Gly Val Val Pro Gln Thr Val Val Val Ala Phe Tyr Val Gly
 195 200 205
 Ala Ala Leu Leu Val Ile Thr Ser Ala Phe Thr Ile Phe Lys Val Lys
 210 215 220
 Glu Tyr Asn Pro Glu Thr Tyr Ala Arg Tyr His Gly Ile Asp Val Ala
 225 230 235 240

Ala Asn Gln Glu Lys Ala Asn Trp Ile Glu Leu Leu Lys Thr Ala Pro
245 250 255

Lys Ala Phe Trp Thr Val Thr Leu Val Gln Phe Phe Cys Trp Phe Ala
260 265 270

Phe Gln Tyr Met Trp Thr Tyr Ser Ala Gly Ala Ile Ala Glu Asn Val
275 280 285

Trp His Thr Thr Asp Ala Ser Ser Val Gly Tyr Gln Glu Ala Gly Asn
290 295 300

Trp Tyr Gly Val Leu Ala Ala Val Gln Ser Val Ala Ala Val Ile Cys
305 310 315 320

Ser Phe Val Leu Ala Lys Val Pro Asn Lys Tyr His Lys Ala Gly Tyr
325 330 335

Phe Gly Cys Leu Ala Leu Gly Ala Leu Gly Phe Phe Ser Val Phe Phe
340 345 350

Ile Gly Asn Gln Tyr Ala Leu Val Leu Ser Tyr Thr Leu Ile Gly Ile
355 360 365

Ala Trp Ala Gly Ile Ile Thr Tyr Pro Leu Thr Ile Val Thr Asn Ala
370 375 380

Leu Ser Gly Lys His Met Gly Thr Tyr Leu Gly Leu Phe Asn Gly Ser
385 390 395 400

Ile Cys Met Pro Gln Ile Val Ala Ser Leu Leu Ser Phe Val Leu Phe
405 410 415

Pro Met Leu Gly Gly Leu Gln Ala Thr Met Phe Leu Val Gly Gly Val
420 425 430

Val Leu Leu Leu Gly Ala Phe Ser Val Phe Leu Ile Lys Glu Thr His
435 440 445

Gly Gly Val
450

<210> 153

<211> 1020

<212> DNA

<213> Neisseria gonorrhoeae

<400> 153

atgatagggg	atcgccgcgc	cggcaaccat	ttcggatttt	ccaaagcaaa	tacttttcaa	60
atcaaaaaaa	aggatttact	ttatgtcggg	atatacgctt	caaacagcaa	aacaagggtt	120
gcccgcgccg	gcaaaaagca	cgatttggat	gttgagcttc	ggctatctcg	gcgttcagac	180
ggcctttacc	ctgcaaagct	cgcagatgag	ccgcattttt	caaacgctag	gcgcagaccc	240
gcacaatttg	ggctgggttt	tcatcctgcc	gccgctggcg	gggatgctgg	ttcagccgat	300
agtggctact	actcagaccg	cacttggaag	ccgcgcttgg	gcggccgccc	cctgccgtat	360
ctgctttacg	gcacgctgat	tgcggtcatc	gtgatgattt	tgatgccgaa	ctcgggcagc	420

ttcgggtttcg	gctatgcgtc	gctggcgggc	ttgtcggttcg	gcgcgctgat	gattgcgctg	480
ttggacgtgt	cgtcgaatat	ggcgatgcag	ccgtttaaga	tgatggtcgg	cgatatggtc	540
aacgaggagc	agaaaagcta	cgctacggg	attcaaagtt	tcttagcgaa	tacggacgcg	600
gttgtggcag	cgattctgcc	gtttgtgttc	gcgtatatcg	gtttggcgaa	cactgccgag	660
aaaggcgttg	tgccacaaac	cgtggtcgta	gcattctatg	tgggtgcggc	gttactgatt	720
attaccagtg	cgttcacaa	ctccaaagtc	aaagaatacg	acccggaaac	ctacgcccg	780
taccacggca	tcgatgtcgc	cgcgaaatcag	gaaaaagcca	actggttcga	actcttaaaa	840
accgcgccta	aagtgttttg	gacggttact	ccggtacagt	ttttctgctg	gttcgccttc	900
cggtatatgt	ggacttactc	ggcaggcgcg	attgcagaaa	acgtctggca	cactaccgat	960
gcgtcttccg	taggccatca	ggaggcgggc	aaccggtacg	gcgttttggc	ggcgggtgtg	1020

<210> 154
 <211> 339
 <212> PRT
 <213> *Neisseria gonorrhoeae*

<400> 154
 Met Ile Gly Asp Arg Arg Ala Gly Asn His Phe Gly Phe Ser Lys Ala
 1 5 10 15
 Asn Thr Phe Gln Ile Lys Lys Lys Asp Leu Leu Tyr Val Gly Ile Tyr
 20 25 30
 Ala Ser Asn Ser Lys Thr Arg Phe Ala Arg Ala Gly Lys Lys His Asp
 35 40 45
 Leu Asp Val Glu Leu Arg Leu Ser Arg Arg Ser Asp Gly Leu Tyr Pro
 50 55 60
 Ala Lys Leu Ala Asp Glu Pro His Phe Ser Asn Ala Arg Arg Arg Pro
 65 70 75 80
 Ala Gln Phe Gly Leu Val Phe His Pro Ala Ala Ala Gly Gly Asp Ala
 85 90 95
 Gly Ser Ala Asp Ser Gly Tyr Tyr Ser Asp Arg Thr Trp Lys Pro Arg
 100 105 110
 Leu Gly Gly Arg Arg Leu Pro Tyr Leu Leu Tyr Gly Thr Leu Ile Ala
 115 120 125
 Val Ile Val Met Ile Leu Met Pro Asn Ser Gly Ser Phe Gly Phe Gly
 130 135 140
 Tyr Ala Ser Leu Ala Ala Leu Ser Phe Gly Ala Leu Met Ile Ala Leu
 145 150 155 160
 Leu Asp Val Ser Ser Asn Met Ala Met Gln Pro Phe Lys Met Met Val
 165 170 175
 Gly Asp Met Val Asn Glu Glu Gln Lys Ser Tyr Ala Tyr Gly Ile Gln
 180 185 190
 Ser Phe Leu Ala Asn Thr Asp Ala Val Val Ala Ala Ile Leu Pro Phe
 195 200 205

Val Phe Ala Tyr Ile Gly Leu Ala Asn Thr Ala Glu Lys Gly Val Val
 210 215 220
 Pro Gln Thr Val Val Val Ala Phe Tyr Val Gly Ala Ala Leu Leu Ile
 225 230 235 240
 Ile Thr Ser Ala Phe Thr Ile Ser Lys Val Lys Glu Tyr Asp Pro Glu
 245 250 255
 Thr Tyr Ala Arg Tyr His Gly Ile Asp Val Ala Ala Asn Gln Glu Lys
 260 265 270
 Ala Asn Trp Phe Glu Leu Leu Lys Thr Ala Pro Lys Val Phe Trp Thr
 275 280 285
 Val Thr Pro Val Gln Phe Phe Cys Trp Phe Ala Phe Arg Tyr Met Trp
 290 295 300
 Thr Tyr Ser Ala Gly Ala Ile Ala Glu Asn Val Trp His Thr Thr Asp
 305 310 315 320
 Ala Ser Ser Val Gly His Gln Glu Ala Gly Asn Arg Tyr Gly Val Leu
 325 330 335
 Ala Ala Val

<210> 155
 <211> 358
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (111)..(111)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (122)..(122)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (138)..(138)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (140)..(140)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (243)..(243)
 <223> N= Unknown

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<220>
<221> misc_feature
<222> (251)..(251)
<223> N= Unknown

<220>
<221> misc_feature
<222> (259)..(259)
<223> N= Unknown

<220>
<221> misc_feature
<222> (291)..(291)
<223> N= Unknown

<220>
<221> misc_feature
<222> (344)..(344)
<223> N= Unknown

<400> 155
atgttggttcc gtaaaacgac cgccgccgtt ttggcgcata ccttgatgct gaacggctgt      60
acgttgatgt tgtggggaat gaacaacccg gtcagcgaaa caatcacccg naaacacggt      120
gncaaagacc aaatccgngn cttcggtgtg gttgccgaag acaatgccca attggaaaag      180
ggcagcctgg tgatgatggg cggaaaatac tggttcgtcg tcaatcccga agattcggcg      240
aantgacggg nattttgang gcagggctgg acaaaccctt ccaaatagtt naggataccc      300

cgagctatgc tgccaccaag ccttgccggt caaactcgga tcgntcggca gccagaat      358

<210> 156
<211> 120
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (41)..(41)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (47)..(47)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (81)..(82)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (87)..(87)
<223> Xaa= any amino acid

<220>

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<221> misc_feature
 <222> (98)..(98)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (104)..(104)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (116)..(116)
 <223> Xaa= any amino acid

<400> 156
 Met Leu Phe Arg Lys Thr Thr Ala Ala Val Leu Ala His Thr Leu Met
 1 5 10 15
 Leu Asn Gly Cys Thr Leu Met Leu Trp Gly Met Asn Asn Pro Val Ser
 20 25 30
 Glu Thr Ile Thr Arg Lys His Val Xaa Lys Asp Gln Ile Arg Xaa Phe
 35 40 45
 Gly Val Val Ala Glu Asp Asn Ala Gln Leu Glu Lys Gly Ser Leu Val
 50 55 60
 Met Met Gly Gly Lys Tyr Trp Phe Val Val Asn Pro Glu Asp Ser Ala
 65 70 75 80
 Xaa Xaa Thr Gly Ile Leu Xaa Ala Gly Leu Asp Lys Pro Phe Gln Ile
 85 90 95
 Val Xaa Asp Thr Pro Ser Tyr Xaa Cys His Gln Ala Leu Pro Val Lys
 100 105 110
 Leu Gly Ser Xaa Gly Ser Gln Asn
 115 120

<210> 157
 <211> 717
 <212> DNA
 <213> Neisseria meningitidis

<400> 157
 atgttggtcc gtaaaacgac cgccgccggt ttggcggcaa ccttgatgct gaacggctgt 60
 acgttgatgt tgtggggaat gaacaaccgc gtcagcgaaa caatcaccgc caaacacgtt 120
 gacaaagacc aaatccgcgc cttcggtgtg gttgccgaag acaatgccca attggaaaag 180
 ggcagcctgg tgatgatggg cggaaaatac tggttcgtcg tcaatcccgga agattcggcg 240
 aagctgacgg gcattttgaa ggcagggctg gacaaacct tccaaatagt tgaggatacc 300
 ccgagctatg ctgccacca agccctgccc gtcaaactcg aatcgccctg cagccagaat 360
 ttcagtaccg aaggcctttg cctgcgctac gataccgaca agcctgccga catcgccaag 420
 ctgaaacagc tcgggtttga agcgggtcaaa ctcgacaatc ggaccattta cagcgctgc 480
 gtatccgcca aaggcaaata ctacgccaca ccgcaaaaac tgaacgccga ttaccatttt 540
 gagcaaagtg tgccctgccga tattttattac acggttactg aagaacatac cgacaaatcc 600

aagctgtttg caaatatctt atatacgccc ccctttttga tactggatgc ggcggg'gcgcg 660
gtactggcct tgcctgcggc ggctctgggt gcggtcgtgg atgccgcccg caaatga 717

<210> 158
<211> 238
<212> PRT
<213> Neisseria meningitidis

<400> 158
Met Leu Phe Arg Lys Thr Thr Ala Ala Val Leu Ala Ala Thr Leu Met
1 5 10 15
Leu Asn Gly Cys Thr Leu Met Leu Trp Gly Met Asn Asn Pro Val Ser
20 25 30
Glu Thr Ile Thr Arg Lys His Val Asp Lys Asp Gln Ile Arg Ala Phe
35 40 45
Gly Val Val Ala Glu Asp Asn Ala Gln Leu Glu Lys Gly Ser Leu Val
50 55 60
Met Met Gly Gly Lys Tyr Trp Phe Val Val Asn Pro Glu Asp Ser Ala
65 70 75 80
Lys Leu Thr Gly Ile Leu Lys Ala Gly Leu Asp Lys Pro Phe Gln Ile
85 90 95
Val Glu Asp Thr Pro Ser Tyr Ala Arg His Gln Ala Leu Pro Val Lys
100 105 110
Leu Glu Ser Pro Gly Ser Gln Asn Phe Ser Thr Glu Gly Leu Cys Leu
115 120 125
Arg Tyr Asp Thr Asp Lys Pro Ala Asp Ile Ala Lys Leu Lys Gln Leu
130 135 140
Gly Phe Glu Ala Val Lys Leu Asp Asn Arg Thr Ile Tyr Thr Arg Cys
145 150 155 160
Val Ser Ala Lys Gly Lys Tyr Tyr Ala Thr Pro Gln Lys Leu Asn Ala
165 170 175
Asp Tyr His Phe Glu Gln Ser Val Pro Ala Asp Ile Tyr Tyr Thr Val
180 185 190
Thr Glu Glu His Thr Asp Lys Ser Lys Leu Phe Ala Asn Ile Leu Tyr
195 200 205
Thr Pro Pro Phe Leu Ile Leu Asp Ala Ala Gly Ala Val Leu Ala Leu
210 215 220
Pro Ala Ala Ala Leu Gly Ala Val Val Asp Ala Ala Arg Lys
225 230 235

<210> 159
<211> 714

<212> DNA

<213> Neisseria meningitidis

<400> 159

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atgttggtcc gtaaaacgac cgccgcccgtt ttggcggcaa ccttgatgtt gaacggctgt      60
acggtaatat tgtggggtat gaacagcccg ttcagcgaaa cgaccgcccg caaacacgtt      120
gacaaggacc aaatccgcgc cttcgggtgtg gttgccgaag acaatgccc aattggaaaag      180
ggcagcctgg tgatgatggg cgggaaatac tggttcgtcg tcaatcctga agattcggcg      240
aagctgacgg gcattttgaa ggccgggttg gacaagcagt ttcaaagggt tgagcccaac      300
ccgcgctttg cctaccaagc cctgccggtc aaactcgaat cgcccgccag ccagaatttc      360
agtaccgaag gcctttgcct gcgctacgat accgacagac ctgccgacat cgccaagctg      420
aaacagcttg agtttggaag ggtcgaactc gacaatcgga ccatttacac gcgctgcgtc      480
tccgccaaaag gcaaatacta cgccacaccg caaaaactga acgccgatta tcattttgag      540
caaagtgtgc ctgccgatat ttattacacg gttacgaaaa aacataccga caaatccaag      600
ttgtttgaaa atattgcata tacgcccacc acgttgatac tggatgcggt gggcgcggtg      660
ctggccttgc ctgtcgcggc gttgattgca gccacgaatt cctcagacaa atga      714
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<210> 160

<211> 237

<212> PRT

<213> Neisseria meningitidis

<400> 160

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Met Leu Phe Arg Lys Thr Thr Ala Ala Val Leu Ala Ala Thr Leu Met
1              5              10              15
```

```
Leu Asn Gly Cys Thr Val Met Met Trp Gly Met Asn Ser Pro Phe Ser
                20              25              30
```

```
Glu Thr Thr Ala Arg Lys His Val Asp Lys Asp Gln Ile Arg Ala Phe
```

35

40

45

```
Gly Val Val Ala Glu Asp Asn Ala Gln Leu Glu Lys Gly Ser Leu Val
50              55              60
```

```
Met Met Gly Gly Lys Tyr Trp Phe Val Val Asn Pro Glu Asp Ser Ala
65              70              75              80
```

```
Lys Leu Thr Gly Ile Leu Lys Ala Gly Leu Asp Lys Gln Phe Gln Met
85              90              95
```

```
Val Glu Pro Asn Pro Arg Phe Ala Tyr Gln Ala Leu Pro Val Lys Leu
100             105             110
```

```
Glu Ser Pro Ala Ser Gln Asn Phe Ser Thr Glu Gly Leu Cys Leu Arg
115             120             125
```

```
Tyr Asp Thr Asp Arg Pro Ala Asp Ile Ala Lys Leu Lys Gln Leu Glu
130             135             140
```

```
Phe Glu Ala Val Glu Leu Asp Asn Arg Thr Ile Tyr Thr Arg Cys Val
145             150             155             160
```

```
Ser Ala Lys Gly Lys Tyr Tyr Ala Thr Pro Gln Lys Leu Asn Ala Asp
165             170             175
```

Tyr His Phe Glu Gln Ser Val Pro Ala Asp Ile Tyr Tyr Thr Val Thr
180 185 190

Lys Lys His Thr Asp Lys Ser Lys Leu Phe Glu Asn Ile Ala Tyr Thr
195 200 205

Pro Thr Thr Leu Ile Leu Asp Ala Val Gly Ala Val Leu Ala Leu Pro
210 215 220

Val Ala Ala Leu Ile Ala Ala Thr Asn Ser Ser Asp Lys
225 230 235

<210> 161
<211> 714
<212> DNA
<213> Neisseria gonorrhoeae

<400> 161
atgttggtcc gtaaaacgac cgccgcccgtt ttggcggcaa ccttgatact gaacggctgt 60
acgatgatgt tgcgggggat gaacaacccg gtcagccaaa caatcacccg caaacacggt 120
gacaaagacc aaatccgcgc cttcgggtgtg gttgccgaag acaatgccca attggaaaag 180
ggcagcctgg tgatgatggg cgggaaatac tggttcgccg tcaatcccga agattcggcg 240
aagctgacgg gccttttgaa ggccgggttg gacaagccct tccaaatagt tgaggatacc 300
ccgagctatg cccgccacca agccctgccg gtcaaattcg aagcggccgg cagccagaat 360
ttcagtaccg gaggtctttg cctgcgctat gataccggca gacctgacga catcgccaag 420
ctgaaacagc ttgagtttaa agcgggtcaaa ctgcacaatc ggaccattta cacgcgtgc 480
gtatccgcca aaggcaaata ctacgccacg ccgcaaaaac tgaacgccga ttatcatttt 540
gagcaaagtg tgcccgcga tatttattat acggttactg aaaaacatac cgacaaatcc 600
aagctgtttg gaaatatctt atatacggcc cccttggtga tattggatgc ggcgccgcg 660
gtgctgggtc tgcctatggc tctgattgca gccgcgaatt cctcagacaa atga 714

<210> 162
<211> 237
<212> PRT
<213> Neisseria meningitidis

<400> 162
Met Leu Phe Arg Lys Thr Thr Ala Ala Val Leu Ala Ala Thr Leu Ile
1 5 10 15
Leu Asn Gly Cys Thr Met Met Leu Arg Gly Met Asn Asn Pro Val Ser
20 25 30
Gln Thr Ile Thr Arg Lys His Val Asp Lys Asp Gln Ile Arg Ala Phe
35 40 45
Gly Val Val Ala Glu Asp Asn Ala Gln Leu Glu Lys Gly Ser Leu Val
50 55 60
Met Met Gly Gly Lys Tyr Trp Phe Ala Val Asn Pro Glu Asp Ser Ala
65 70 75 80
Lys Leu Thr Gly Leu Leu Lys Ala Gly Leu Asp Lys Pro Phe Gln Ile
85 90 95

Val Glu Asp Thr Pro Ser Tyr Ala Arg His Gln Ala Leu Pro Val Lys
100 105 110

Phe Glu Ala Pro Gly Ser Gln Asn Phe Ser Thr Gly Gly Leu Cys Leu
115 120 125

Arg Tyr Asp Thr Gly Arg Pro Asp Asp Ile Ala Lys Leu Lys Gln Leu
130 135 140

Glu Phe Lys Ala Val Lys Leu Asp Asn Arg Thr Ile Tyr Thr Arg Cys
145 150 155 160

Val Ser Ala Lys Gly Lys Tyr Tyr Ala Thr Pro Gln Lys Leu Asn Ala
165 170 175

Asp Tyr His Phe Glu Gln Ser Val Pro Ala Asp Ile Tyr Tyr Thr Val
180 185 190

Thr Glu Lys His Thr Asp Lys Ser Lys Leu Phe Gly Asn Ile Leu Tyr
195 200 205

Thr Pro Pro Leu Leu Ile Leu Asp Ala Ala Ala Val Leu Val Leu
210 215 220

Pro Met Ala Leu Ile Ala Ala Ala Asn Ser Ser Asp Lys
225 230 235

<210> 163
<211> 374
<212> DNA
<213> Neisseria meningitidis

<400> 163
gtcagtcctg tactgcctat tacacacgaa cggacagggt ttgaagggtg tatcggttat 60
gaaacccatt tttagggca cggacatgaa gtacacagtc cgttcgatca tcatgattca 120
aaaagcactt ctgatttcag cggcgggtgta gacggcgggt ttactgttta ccaacttcat 180
cgaacatggt cggaaatcca tccggaggat gaatatgacg ggccgcaagc agcgattatc 240
cgccccccgg aggagcaagg gatataata gctattatgt caaaggaact tcaacaaaaa 300
caaagactag tattgtccct caagcccat tttagaccg ttggctagaa gaaaatgccg 360
gtgccgcctc tggt 374

<210> 164
<211> 125
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (79)..(79)
<223> Xaa= any amino acid

<400> 164
Val Ser Pro Val Leu Pro Ile Thr His Glu Arg Thr Gly Phe Glu Gly
1 5 10 15

Val Ile Gly Tyr Glu Thr His Phe Ser Gly His Gly His Glu Val His
20 25 30

Ser Pro Phe Asp His His Asp Ser Lys Ser Thr Ser Asp Phe Ser Gly
35 40 45

Gly Val Asp Gly Gly Phe Thr Val Tyr Gln Leu His Arg Thr Trp Ser
50 55 60

Glu Ile His Pro Glu Asp Glu Tyr Asp Gly Pro Gln Ala Ala Xaa Tyr
65 70 75 80

Pro Pro Pro Gly Gly Ala Arg Asp Ile Tyr Ser Tyr Tyr Val Lys Gly
85 90 95

Thr Ser Thr Lys Thr Lys Thr Ser Ile Val Pro Gln Ala Pro Phe Ser
100 105 110

Asp Arg Trp Leu Glu Glu Asn Ala Gly Ala Ala Ser Gly
115 120 125

<210> 165
<211> 1452
<212> DNA
<213> Neisseria meningitidis

<400> 165
atgaatttgc ctattcaaaa attcatgatg ctgtttgcag cagcaatatac gttgctgcaa 60
atccccatta gtcattgcgaa cgggttggat gcccggttgc gcgatgatat gcaggcaaaa 120
cactacgaac cgggtggtaa ataccatctg tttggtaatg ctccggcgag tgtaaaaaag 180
cgggttttac cgtccagac atttgatgca actgcggtca gtccgtgact gcctattaca 240
cacgaacgga cagggttga aggtgttatc ggttatgaaa cccatttttc agggcacgga 300
catgaagtac acagtccgtt cgatcatcat gattcaaaaa gcacttctga tttcagcggc 360

ggtgtagacg gcggttttac tgtttaccaa cttcatcgaa cagggtcgga aatccatccg 420
gaggatggat atgacgggccc gcaaggcagc gattatccgc ccccgaggag agcaagggat 480
atatacagct attatgtcaa aggaacttca acaaaaaaaa agactaatat tgtccctcaa 540
gccccatttt cagaccgttg gctaaaagaa aatgccggtg ccgcctctgg ttttttcagc 600
cgtgcggatg aagcaggaaa actgatatgg gaaagcgacc ccaataaaaa ttggtgggct 660
aaccgtatgg atgatgttcg cggcatcgtc caaggtgcgg ttaatccttt tttaatgggt 720
tttcaaggag tagggattgg ggcaattaca gacagtgcag taagcccgtt cacagataca 780
gccgcgcagc agactctaca aggtattaat gatttaggaa aattaagtcc ggaagcacia 840
cttgctgccg cgagcctatt acaggacagt gcttttgcgg taaaagacgg tatcaactct 900
gccaaacaat gggctgatgc ccatccaaat ataacagcta ctgcccacac tgccctttcc 960
gcagcagagg ccgcagggtac gggttggaga ggtaaaaaag tagaacttaa cccgactaaa 1020
tggtgattggg ttaaaaatac cggttataaa aaacctgctg cccgccatat gcagacttta 1080
gatgggggaga tggcagggtg gaataaacct attaaatctt taccacacag tgccgctgaa 1140
aaaagaaaac aaaattttga gaagttaaat agtaactgga gttcagcaag ttttgattca 1200
gtgcacaaaa cactaactcc caatgcacct ggtattttta gtcctgataa agttaaaact 1260
cgatacacta gtttagatgg aaaaattaca attataaaaag ataacgaaaa caactatttt 1320
agaatccatg ataattcacg aaaacagtat cttgattcaa atggtaatgc tgtgaaaacc 1380
ggtaatttac aaggtaagca agcaaaagat tatttacaac aacaaactca tatcagggaac 1440
ttagacaaat ga 1452

<210> 166
<211> 483

<212> PRT

<213> Neisseria meningitidis

<400> 166

Met Asn Leu Pro Ile Gln Lys Phe Met Met Leu Phe Ala Ala Ala Ile
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Ser Leu Leu Gln Ile Pro Ile Ser His Ala Asn Gly Leu Asp Ala Arg
20 25 30

Leu Arg Asp Asp Met Gln Ala Lys His Tyr Glu Pro Gly Gly Lys Tyr
35 40 45

His Leu Phe Gly Asn Ala Arg Gly Ser Val Lys Lys Arg Val Tyr Ala
50 55 60

Val Gln Thr Phe Asp Ala Thr Ala Val Ser Pro Val Leu Pro Ile Thr
65 70 75 80

His Glu Arg Thr Gly Phe Glu Gly Val Ile Gly Tyr Glu Thr His Phe
85 90 95

Ser Gly His Gly His Glu Val His Ser Pro Phe Asp His His Asp Ser
100 105 110

Lys Ser Thr Ser Asp Phe Ser Gly Gly Val Asp Gly Gly Phe Thr Val
115 120 125

Tyr Gln Leu His Arg Thr Gly Ser Glu Ile His Pro Glu Asp Gly Tyr
130 135 140

Asp Gly Pro Gln Gly Ser Asp Tyr Pro Pro Pro Gly Gly Ala Arg Asp
145 150 155 160

Ile Tyr Ser Tyr Tyr Val Lys Gly Thr Ser Thr Lys Thr Lys Thr Asn
165 170 175

Ile Val Pro Gln Ala Pro Phe Ser Asp Arg Trp Leu Lys Glu Asn Ala
180 185 190

Gly Ala Ala Ser Gly Phe Phe Ser Arg Ala Asp Glu Ala Gly Lys Leu
195 200 205

Ile Trp Glu Ser Asp Pro Asn Lys Asn Trp Trp Ala Asn Arg Met Asp
210 215 220

Asp Val Arg Gly Ile Val Gln Gly Ala Val Asn Pro Phe Leu Met Gly
225 230 235 240

Phe Gln Gly Val Gly Ile Gly Ala Ile Thr Asp Ser Ala Val Ser Pro
245 250 255

Val Thr Asp Thr Ala Ala Gln Gln Thr Leu Gln Gly Ile Asn Asp Leu
260 265 270

Gly Lys Leu Ser Pro Glu Ala Gln Leu Ala Ala Ala Ser Leu Leu Gln
 275 280 285
 Asp Ser Ala Phe Ala Val Lys Asp Gly Ile Asn Ser Ala Lys Gln Trp
 290 295 300
 Ala Asp Ala His Pro Asn Ile Thr Ala Thr Ala Gln Thr Ala Leu Ser
 305 310 315 320
 Ala Ala Glu Ala Ala Gly Thr Val Trp Arg Gly Lys Lys Val Glu Leu
 325 330 335
 Asn Pro Thr Lys Trp Asp Trp Val Lys Asn Thr Gly Tyr Lys Lys Pro
 340 345 350
 Ala Ala Arg His Met Gln Thr Leu Asp Gly Glu Met Ala Gly Gly Asn
 355 360 365
 Lys Pro Ile Lys Ser Leu Pro Asn Ser Ala Ala Glu Lys Arg Lys Gln
 370 375 380
 Asn Phe Glu Lys Phe Asn Ser Asn Trp Ser Ser Ala Ser Phe Asp Ser
 385 390 395 400
 Val His Lys Thr Leu Thr Pro Asn Ala Pro Gly Ile Leu Ser Pro Asp
 405 410 415
 Lys Val Lys Thr Arg Tyr Thr Ser Leu Asp Gly Lys Ile Thr Ile Ile
 420 425 430
 Lys Asp Asn Glu Asn Asn Tyr Phe Arg Ile His Asp Asn Ser Arg Lys
 435 440 445
 Gln Tyr Leu Asp Ser Asn Gly Asn Ala Val Lys Thr Gly Asn Leu Gln
 450 455 460
 Gly Lys Gln Ala Lys Asp Tyr Leu Gln Gln Gln Thr His Ile Arg Asn
 465 470 475 480

Leu Asp Lys

<210> 167
 <211> 1449
 <212> DNA
 <213> Neisseria meningitidis

<220>
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 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (53)..(53)
 <223> N= Unknown

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<223> N= Unknown

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<223> N= Unknown

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<223> N= Unknown

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<223> N= Unknown

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<223> N= Unknown

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<223> N= Unknown

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<223> N= Unknown

<220>
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<222> (1193)..(1197)
<223> N= Unknown

<220>
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<222> (1306)..(1306)
<223> N= Unknown

<220>
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<222> (1351)..(1351)
<223> N= Unknown

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<220>
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 <222> (1365)..(1365)
 <223> N= Unknown

<400> 167
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 atcccnatta gtcacgcaaa cgggttggat gcccgtttgc gcgatgatat gcaggcaaaa 120
 cactacgaac cgggttggttaa ataccatctg tttggtaatg ctccgcgagc tggttaaaaat 180
 cgggttttac cgcgtccaaac atttgatgca actgcggctg gcccataact gcctattaca 240
 cacgaacgga caggatttga aggcatatc gggttatgaaa cccatttttc aggacatgga 300
 catgaagtac acagtcggtt cgataatcat gattcaaaaa gcaattctga tttcagcggc 360
 ggcgtagacg gtggttttac cgtttaccaa cttcatcgga cagggtcgga aatccatccg 420
 gaggatggat atgacggggc gcaaggcagc gattatccgc ccccgaggag agcaagggat 480
 atatacannt antatgtcaa aggaacttca acaaaaacaa agagtaatat tgttccccga 540
 gccccatttt cagaccgctg gctaaaagaa aatgccggtg ccgcctctgg ttttttcagc 600
 cgtgctgatg aagcaggaaa actgatattg gaaagcgacc ccaataaaaa ttggtgggct 660
 aaccgatagg atgatattcg cggcatcgtc caagggtcgg ttaatccttt ttaaatgggt 720
 tttcaaggag tagggattgg ggcaattaca gacagtgcag taagcccggt cacagatata 780
 gccgcgcagc agactctaca aggtatnaat catttaggaa anttaagtcc cgaagcacia 840
 cttgcggtcg caaccgcatt acaagacagt gcttttgcgg taaaagacgg tatcaattcc 900
 gccagacaat gggctgatgc ccatccgaat ataactgcaa cagcccaaac tgccttgcc 960
 gtagcagang ccgcaactac ggtttggggc ggtaaaaaag tagaacttaa cccgaccaa 1020
 tgggattggg ttaaaaatac nggctataa acacctgctg ttgcgaccat gcatactttg 1080
 gatggggaaa tggccggtgg gaatagaccg cctaaatcta taacgtccaa cagcaaaagca 1140
 gatgcttcca cacaaccgtc tttacaagcg caactaattg gagaacaaat tannnnnggg 1200
 catgcttata acaagcatgt cataagacaa caagaattta cggattttaa tatcaattca 1260
 ccagcagatt ttgctcggca tattgaaaat attgttagcc atccancaa tatgaaagag 1320
 ttacctcgcg gtagaactgc gtattgggat nataaaacag ggacnatagt tatccgagat 1380
 aaaaattctg acgatggagg tacagcattt agaccaacat caggtaaaaa atattatgat 1440
 gatttatag 1449

<210> 168
 <211> 482
 <212> PRT
 <213> Neisseria meningitidis

<220>
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 <223> Xaa= any amino acid

<220>
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 <222> (18)..(18)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (163)..(164)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (269)..(269)

<223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (274)..(274)

<223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (323)..(323)

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<222> (350)..(350)

<223> Xaa= any amino acid

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<222> (398)..(399)

<223> Xaa= any amino acid

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<221> misc_feature

<222> (451)..(451)

<223> Xaa= any amino acid

<400> 168

Met Asn Xaa Pro Ile Gln Lys Phe Met Met Leu Phe Ala Ala Ala Ile
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Ser Xaa Leu Gln Ile Pro Ile Ser His Ala Asn Gly Leu Asp Ala Arg
20 25 30

Leu Arg Asp Asp Met Gln Ala Lys His Tyr Glu Pro Gly Gly Lys Tyr
35 40 45

His Leu Phe Gly Asn Ala Arg Gly Ser Val Lys Asn Arg Val Tyr Ala
50 55 60

Val Gln Thr Phe Asp Ala Thr Ala Val Gly Pro Ile Leu Pro Ile Thr
65 70 75 80

His Glu Arg Thr Gly Phe Glu Gly Ile Ile Gly Tyr Glu Thr His Phe
85 90 95

Ser Gly His Gly His Glu Val His Ser Pro Phe Asp Asn His Asp Ser
100 105 110

Lys Ser Thr Ser Asp Phe Ser Gly Gly Val Asp Gly Gly Phe Thr Val
115 120 125

Tyr Gln Leu His Arg Thr Gly Ser Glu Ile His Pro Glu Asp Gly Tyr
 130 135 140
 Asp Gly Pro Gln Gly Ser Asp Tyr Pro Pro Pro Gly Gly Ala Arg Asp
 145 150 155 160
 Ile Tyr Xaa Xaa Tyr Val Lys Gly Thr Ser Thr Lys Thr Lys Ser Asn
 165 170 175
 Ile Val Pro Arg Ala Pro Phe Ser Asp Arg Trp Leu Lys Glu Asn Ala
 180 185 190
 Gly Ala Ala Ser Gly Phe Phe Ser Arg Ala Asp Glu Ala Gly Lys Leu
 195 200 205
 Ile Trp Glu Ser Asp Pro Asn Lys Asn Trp Trp Ala Asn Arg Met Asp
 210 215 220
 Asp Ile Arg Gly Ile Val Gln Gly Ala Val Asn Pro Phe Leu Met Gly
 225 230 235 240
 Phe Gln Gly Val Gly Ile Gly Ala Ile Thr Asp Ser Ala Val Ser Pro
 245 250 255
 Val Thr Asp Thr Ala Ala Gln Gln Thr Leu Gln Gly Xaa Asn His Leu
 260 265 270
 Gly Xaa Leu Ser Pro Glu Ala Gln Leu Ala Ala Ala Thr Ala Leu Gln
 275 280 285
 Asp Ser Ala Phe Ala Val Lys Asp Gly Ile Asn Ser Ala Arg Gln Trp
 290 295 300
 Ala Asp Ala His Pro Asn Ile Thr Ala Thr Ala Gln Thr Ala Leu Ala
 305 310 315 320
 Val Ala Xaa Ala Ala Thr Thr Val Trp Gly Gly Lys Lys Val Glu Leu
 325 330 335
 Asn Pro Thr Lys Trp Asp Trp Val Lys Asn Thr Gly Tyr Xaa Thr Pro
 340 345 350
 Ala Val Arg Thr Met His Thr Leu Asp Gly Glu Met Ala Gly Gly Asn
 355 360 365
 Arg Pro Pro Lys Ser Ile Thr Ser Asn Ser Lys Ala Asp Ala Ser Thr
 370 375 380
 Gln Pro Ser Leu Gln Ala Gln Leu Ile Gly Glu Gln Ile Xaa Xaa Gly
 385 390 395 400
 His Ala Tyr Asn Lys His Val Ile Arg Gln Gln Glu Phe Thr Asp Leu
 405 410 415
 Asn Ile Asn Ser Pro Ala Asp Phe Ala Arg His Ile Glu Asn Ile Val

420 425 430
 Ser His Pro Xaa Asn Met Lys Glu Leu Pro Arg Gly Arg Thr Ala Tyr
 435 440 445
 Trp Asp Xaa Lys Thr Gly Thr Ile Val Ile Arg Asp Lys Asn Ser Asp
 450 455 460
 Asp Gly Gly Thr Ala Phe Arg Pro Thr Ser Gly Lys Lys Tyr Tyr Asp
 465 470 475 480

Asp Leu

<210> 169
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 169
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<210> 170
 <211> 468
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 170
 Met Asn Leu Pro Ile Gln Lys Phe Met Met Leu Phe Ala Ala Ala Ile
 1 5 10 15

Ser Leu Leu Gln Ile Pro Ile Ser His Ala Asn Gly Leu Asp Ala Arg
 20 25 30

Leu Arg Asp Asp Met Gln Ala Lys His Tyr Glu Pro Gly Gly Lys Tyr

 35 40 45
 His Leu Phe Gly Asn Ala Arg Gly Ser Val Lys Asn Arg Val Cys Ala
 50 55 60

Val Gln Thr Phe Asp Ala Thr Ala Val Gly Pro Ile Leu Pro Ile Thr
 65 70 75 80

His Glu Arg Thr Gly Phe Glu Gly Val Ile Gly Tyr Glu Thr His Phe
 85 90 95

Ser Gly His Gly His Glu Val His Ser Pro Phe Asp Asn His Asp Ser
 100 105 110

Lys Ser Thr Ser Asp Phe Ser Gly Gly Val Asp Gly Gly Phe Thr Val

115	120	125
Tyr Gln Leu His Arg Thr Gly Ser Glu Ile His Pro Glu Asp Gly Tyr		
130	135	140
Asp Gly Pro Gln Gly Gly Gly Tyr Pro Pro Pro Gly Gly Ala Arg Asp		
145	150	155 160
Ile Tyr Ser Tyr His Ile Lys Gly Thr Ser Thr Lys Thr Lys Ile Asn		
	165	170 175
Thr Val Pro Gln Ala Pro Phe Ser Asp Arg Trp Leu Lys Glu Asn Ala		
	180	185 190
Gly Ala Ala Ser Gly Phe Leu Ser Arg Ala Asp Glu Ala Gly Lys Leu		
	195	200 205
Ile Trp Glu Asn Asp Pro Asp Lys Asn Trp Arg Ala Asn Arg Met Asp		
	210	215 220
Asp Ile Arg Gly Ile Val Gln Gly Ala Val Asn Pro Phe Leu Thr Gly		
225	230	235 240
Phe Gln Gly Leu Gly Val Gly Ala Ile Thr Asp Ser Ala Val Ser Pro		
	245	250 255
Val Thr Tyr Ala Ala Ala Arg Lys Thr Leu Gln Gly Ile His Asn Leu		
	260	265 270
Gly Asn Leu Ser Pro Glu Ala Gln Leu Ala Ala Ala Thr Ala Leu Gln		
	275	280 285
Asp Ser Ala Phe Ala Val Lys Asp Ser Ile Asn Ser Ala Arg Gln Trp		
	290	295 300
Ala Asp Ala His Pro Asn Ile Thr Ala Thr Ala Gln Thr Ala Leu Ala		
305	310	315 320
Val Thr Glu Ala Ala Thr Thr Val Trp Gly Gly Lys Lys Val Glu Leu		
	325	330 335
Asn Pro Ala Lys Trp Asp Trp Val Lys Asn Thr Gly Tyr Lys Lys Pro		
	340	345 350
Ala Ala Arg His Met Gln Thr Val Asp Gly Glu Met Ala Gly Gly Asn		
	355	360 365
Lys Pro Leu Glu Ser Lys Asn Thr Val Thr Thr Asn Asn Phe Phe Glu		
	370	375 380
Asn Thr Gly Tyr Thr Glu Lys Val Leu Arg Gln Ala Ser Asn Gly Asp		
385	390	395 400
Tyr His Gly Phe Pro Gln Ser Val Asp Ala Phe Ser Glu Asn Gly Thr		
	405	410 415

Val Ile Gln Ile Val Gly Gly Asp Asn Ile Val Arg His Lys Leu Tyr
 420 425 430

Ile Pro Gly Ser Tyr Lys Gly Lys Asp Gly Asn Phe Glu Tyr Ile Arg
 435 440 445

Glu Ala Asp Gly Lys Ile Asn His Arg Leu Phe Val Pro Asn Gln Gln
 450 455 460

Leu Pro Glu Lys
 465

<210> 171
 <211> 1497
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 171
 atgaatttgc ctattcaaaa attcatgatg ctggttggcag cggcaatata gatgctgcat 60
 atccccatta gtcatgcgaa cggtttggat gcccgtttgc gcgatgatat gcaggcaaaa 120
 cactacgaac cgggtggcaa ataccatctg tttggtaatg ctgcggcgag tgttaaaaat 180
 cgggttttgc cgtccaaac atttgatgca actgcggtcg gccccatact gcctattaca 240
 cacgaacgga caggatttga aggtgttata ggctatgaaa cccatttttc aggacacgga 300
 cacgaagtac acagtcggtt cgataatcat gattcaaaaa gcacttctga tttcagcggc 360
 ggcgtagacg gcggtttttac cgtttaccaa ctcatcgga cagggtcgga aatacatccc 420
 gcagacggat atgacggggc tcaaggcggc ggttatccgg aaccacaagg ggcaagggat 480
 atatacagct accatatcaa aggaacttca accaaaacaa agataaacac tgttccgcaa 540
 gccctttttt cagaccgctg gctaaaagaa aatgccggtg ccgcttccgg ttttctcagc 600
 cgtgcggatg aagcaggaaa actgatattg gaaaacgacc ccgataaaaa ttggcgggct 660
 aaccgtatgg atgatattcg cggcatcgtc caaggtgcgg ttaatccttt tttaacgggt 720
 tttcaagggg tagggattgg ggcaattaca gacagtgcgg taagcccggt cacagatata 780
 gccgctcagc agactctaca aggtattaat gatttaggaa atttaagtcc ggaagcacia 840
 cttgccgccg cgagcctatt acaggacagt gcctttgcgg taaaagacgg catcaattcc 900
 gccagacaat gggctgatgc ccattccgaat ataacagcaa cagcccaaac tgccttgcc 960
 gtacgagagg ccgcaggtag ggtttggcgc ggtaaaaaag tagaacttaa cccgaccaa 1020
 tgggattggg ttaaaaatac cggctataaa aaacctgctg cccgccatat gcagactgta 1080
 gatggggaga tggcaggggg gaatagaccg cctaaatcta taacgtcgga aggaaaagct 1140
 aatgctgcaa cctatcctaa gttgggttaat cagctaaatg agcaaaactt aaataacatt 1200
 gcggctcaag atccaagatt gagtctagct attcatgagg gtaaaaaaaa ttttccaata 1260
 ggaactgcaa cttatgaaga ggcagataga ctaggtaaaa tttgggttgg tgagggtgca 1320
 agacaaacta gtggaggcgg atggttaagt agagatggca ctcgacaata tcggccacca 1380

acagaaaaaa aatcacaatt tgcaactaca ggtattcaag caaatTTTga aacttatact 1440
 attgattcaa atgaaaaaag aaataaaatt aaaaatggac atttaaata taggtaa 1497

<210> 172
 <211> 498
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 172
 Met Asn Leu Pro Ile Gln Lys Phe Met Met Leu Leu Ala Ala Ala Ile
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Ser Met Leu His Ile Pro Ile Ser His Ala Asn Gly Leu Asp Ala Arg

20					25					30						
Leu	Arg	Asp	Asp	Met	Gln	Ala	Lys	His	Tyr	Glu	Pro	Gly	Gly	Lys	Tyr	
35					40					45						
His	Leu	Phe	Gly	Asn	Ala	Arg	Gly	Ser	Val	Lys	Asn	Arg	Val	Cys	Ala	
50					55					60						
Val	Gln	Thr	Phe	Asp	Ala	Thr	Ala	Val	Gly	Pro	Ile	Leu	Pro	Ile	Thr	
65					70					75					80	
His	Glu	Arg	Thr	Gly	Phe	Glu	Gly	Val	Ile	Gly	Tyr	Glu	Thr	His	Phe	
85					90					95						
Ser	Gly	His	Gly	His	Glu	Val	His	Ser	Pro	Phe	Asp	Asn	His	Asp	Ser	
100					105					110						
Lys	Ser	Thr	Ser	Asp	Phe	Ser	Gly	Gly	Val	Asp	Gly	Gly	Phe	Thr	Val	
115					120					125						
Tyr	Gln	Leu	His	Arg	Thr	Gly	Ser	Glu	Ile	His	Pro	Ala	Asp	Gly	Tyr	
130					135					140						
Asp	Gly	Pro	Gln	Gly	Gly	Gly	Tyr	Pro	Glu	Pro	Gln	Gly	Ala	Arg	Asp	
145					150					155					160	
Ile	Tyr	Ser	Tyr	His	Ile	Lys	Gly	Thr	Ser	Thr	Lys	Thr	Lys	Ile	Asn	
165					170					175						
Thr	Val	Pro	Gln	Ala	Pro	Phe	Ser	Asp	Arg	Trp	Leu	Lys	Glu	Asn	Ala	
180					185					190						
Gly	Ala	Ala	Ser	Gly	Phe	Leu	Ser	Arg	Ala	Asp	Glu	Ala	Gly	Lys	Leu	
195					200					205						
Ile	Trp	Glu	Asn	Asp	Pro	Asp	Lys	Asn	Trp	Arg	Ala	Asn	Arg	Met	Asp	
210					215					220						
Asp	Ile	Arg	Gly	Ile	Val	Gln	Gly	Ala	Val	Asn	Pro	Phe	Leu	Thr	Gly	
225					230					235					240	
Phe	Gln	Gly	Val	Gly	Ile	Gly	Ala	Ile	Thr	Asp	Ser	Ala	Val	Ser	Pro	
245					250					255						
Val	Thr	Asp	Thr	Ala	Ala	Gln	Gln	Thr	Leu	Gln	Gly	Ile	Asn	Asp	Leu	
260					265					270						
Gly	Asn	Leu	Ser	Pro	Glu	Ala	Gln	Leu	Ala	Ala	Ala	Ser	Leu	Leu	Gln	
275					280					285						
Asp	Ser	Ala	Phe	Ala	Val	Lys	Asp	Gly	Ile	Asn	Ser	Ala	Arg	Gln	Trp	
290					295					300						
Ala	Asp	Ala	His	Pro	Asn	Ile	Thr	Ala	Thr	Ala	Gln	Thr	Ala	Leu	Ala	
305					310					315					320	

Val Ala Glu Ala Ala Gly Thr Val Trp Arg Gly Lys Lys Val Glu Leu
325 330 335

Asn Pro Thr Lys Trp Asp Trp Val Lys Asn Thr Gly Tyr Lys Lys Pro
340 345 350

Ala Ala Arg His Met Gln Thr Val Asp Gly Glu Met Ala Gly Gly Asn
355 360 365

Arg Pro Pro Lys Ser Ile Thr Ser Glu Gly Lys Ala Asn Ala Ala Thr
370 375 380

Tyr Pro Lys Leu Val Asn Gln Leu Asn Glu Gln Asn Leu Asn Asn Ile
385 390 395 400

Ala Ala Gln Asp Pro Arg Leu Ser Leu Ala Ile His Glu Gly Lys Lys
405 410 415

Asn Phe Pro Ile Gly Thr Ala Thr Tyr Glu Glu Ala Asp Arg Leu Gly
420 425 430

Lys Ile Trp Val Gly Glu Gly Ala Arg Gln Thr Ser Gly Gly Gly Trp
435 440 445

Leu Ser Arg Asp Gly Thr Arg Gln Tyr Arg Pro Pro Thr Glu Lys Lys
450 455 460

Ser Gln Phe Ala Thr Thr Gly Ile Gln Ala Asn Phe Glu Thr Tyr Thr
465 470 475 480

Ile Asp Ser Asn Glu Lys Arg Asn Lys Ile Lys Asn Gly His Leu Asn
485 490 495

Ile Arg

<210> 173
<211> 126
<212> DNA
<213> Neisseria meningitidis

<400> 173
atgaaaaaac aaatcaccgc agccgtaatg atgctgtcta tgattgcccc cgcaatggca 60
aacggcttgg acaatcaggc atttgaagac caaatgttcc acacgcgggc agatgcaccg 120

atgcag 126

<210> 174
<211> 42
<212> PRT
<213> Neisseria meningitidis

<400> 174
Met Lys Lys Gln Ile Thr Ala Ala Val Met Met Leu Ser Met Ile Ala
1 5 10 15

Pro Ala Met Ala Asn Gly Leu Asp Asn Gln Ala Phe Glu Asp Gln Met
 20 25 30

Phe His Thr Arg Ala Asp Ala Pro Met Gln
 35 40

<210> 175
 <211> 546
 <212> DNA
 <213> Neisseria meningitidis

<400> 175
 atgaaaaaac aaatcacccgc agccgtaatg atgctgtcta tgattgcccc cgcaatggca 60
 aacggcttgg acaatcaggc atttgaagac caagtgttcc acacgcgggc agatgcaccg 120
 atgcagttgg cggagctttc tcaaaaggag atgaaggaga cagagggggc gtttcttcca 180
 ttggctatct tgggtggtgc tgccattggt atgtggacac agcatggttt tagttatgca 240
 acgacaggca gaccagcttc tgtagagat gttgctattg ctggcggatt aggcgcaatt 300
 cctggtggtg taggcgccgc aggaaagggt gtttcctttg ctaaataatgg acgtgagatt 360
 aaaatcggca ataatatgcy gatagccctt ttcggtaata gaacagggtca tcctattgga 420
 aaatttcccc attatcatcg tcgagttacg gataatacgg gcaagacttt gcctgggacag 480
 ggaatttggtc gtcatcgccc ttgggaatca aaatctacgg acagatcatg gaaaaaccgc 540
 ttctaa 546

<210> 176
 <211> 181
 <212> PRT
 <213> Neisseria meningitidis

<400> 176
 Met Lys Lys Gln Ile Thr Ala Ala Val Met Met Leu Ser Met Ile Ala
 1 5 10 15

Pro Ala Met Ala Asn Gly Leu Asp Asn Gln Ala Phe Glu Asp Gln Val
 20 25 30

Phe His Thr Arg Ala Asp Ala Pro Met Gln Leu Ala Glu Leu Ser Gln
 35 40 45

Lys Glu Met Lys Glu Thr Glu Gly Ala Phe Leu Pro Leu Ala Ile Leu
 50 55 60

Gly Gly Ala Ala Ile Gly Met Trp Thr Gln His Gly Phe Ser Tyr Ala
 65 70 75 80

Thr Thr Gly Arg Pro Ala Ser Val Arg Asp Val Ala Ile Ala Gly Gly

85 90 95

Leu Gly Ala Ile Pro Gly Gly Val Gly Ala Ala Gly Lys Val Val Ser
 100 105 110

Phe Ala Lys Tyr Gly Arg Glu Ile Lys Ile Gly Asn Asn Met Arg Ile
 115 120 125

Ala Pro Phe Gly Asn Arg Thr Gly His Pro Ile Gly Lys Phe Pro His
 130 135 140

Tyr His Arg Arg Val Thr Asp Asn Thr Gly Lys Thr Leu Pro Gly Gln
 145 150 155 160

Gly Ile Gly Arg His Arg Pro Trp Glu Ser Lys Ser Thr Asp Arg Ser
 165 170 175

Trp Lys Asn Arg Phe
 180

<210> 177
 <211> 546
 <212> DNA
 <213> Neisseria meningitidis

<220>
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 <222> (159)..(159)
 <223> N= Unknown

<220>
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 <222> (164)..(164)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (185)..(185)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (308)..(308)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (420)..(420)
 <223> N= Unknown

<400> 177
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 aacggcttgg acaatcaggc atttgaagac caagtgttcc acacgcgggc agatgcaccg 120
 atgcagttgg cggagctttc tcaaaaggag atgaaggana cagngggggc gtttcttcca 180
 ttgntatct tgggtggtgc tgccattggt atgtggacac agcatgggtt tagttatgca 240
 acgacaggca gaccagcttc tgtagagat gttgctattg ctggcggatt aggcgcaatt 300

cctggtgntg taggcgccgc aggaaagggt gtttcccttg ctaaatatgg acgtgagatt 360
 aaaatcggca ataatatgcg gatagcccct ttcggtaata gaacagggtca tcctattggn 420
 aaatttcccc attatcatcg tcgagttacg gataatacgg gcaagacttt gcctggacag 480
 ggaattggtc gtcatcgccc ttgggaatca aaatctacgg acagatcatg gaaaaaccgc 540
 ttctaa 546

<210> 178
 <211> 181
 <212> PRT

<213> Neisseria meningitidis

<220>

<221> misc_feature

<222> (53)..(53)

<223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (55)..(55)

<223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (62)..(62)

<223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (103)..(103)

<223> Xaa= any amino acid

<400> 178

Met Lys Lys Gln Ile Thr Ala Ala Val Met Met Leu Ser Met Ile Ala
1 5 10 15

Pro Ala Met Ala Asn Gly Leu Asp Asn Gln Ala Phe Glu Asp Gln Val
20 25 30

Phe His Thr Arg Ala Asp Ala Pro Met Gln Leu Ala Glu Leu Ser Gln
35 40 45

Lys Glu Met Lys Xaa Thr Xaa Gly Ala Phe Leu Pro Leu Xaa Ile Leu
50 55 60

Gly Gly Ala Ala Ile Gly Met Trp Thr Gln His Gly Phe Ser Tyr Ala
65 70 75 80

Thr Thr Gly Arg Pro Ala Ser Val Arg Asp Val Ala Ile Ala Gly Gly
85 90 95

Leu Gly Ala Ile Pro Gly Xaa Val Gly Ala Ala Gly Lys Val Val Ser
100 105 110

Phe Ala Lys Tyr Gly Arg Glu Ile Lys Ile Gly Asn Asn Met Arg Ile
115 120 125

Ala Pro Phe Gly Asn Arg Thr Gly His Pro Ile Gly Lys Phe Pro His
130 135 140

Tyr His Arg Arg Val Thr Asp Asn Thr Gly Lys Thr Leu Pro Gly Gln
145 150 155 160

Gly Ile Gly Arg His Arg Pro Trp Glu Ser Lys Ser Thr Asp Arg Ser
165 170 175

Trp Lys Asn Arg Phe
180

<210> 179
<211> 540
<212> DNA
<213> Neisseria meningitidis

<400> 179
atgaaaaaac aaatcaccgc agccgtaatg atgctgtcta tgatcgcccc cgcaatggca 60
aacggattgg acaatcaggc atttgaagac caagtgttcc acacgcgggc agatgcgccg 120
atgcagttgg cggagctttc tcagaaggag atgaaggaga ctgaaggggc ttttcttcca 180
ttggctatct tgggtggtgc tgccattggt atgtggacac agcatggttt tagttatgca 240
acgacaggca gaccagcttc tgttagagat gttgctggcg gattaggcgc aattcctggt 300
gatgtagggtg ctgcaggaaa ggttgtttcc tttgctaaat atggacgtga gattaaaatc 360
ggcaataata tgcggatagc ccctttcggg aatagaacag gtcacccat tggaataatt 420
ccccattatc atcgtcgagt tacggataat acgggcaaga ctttgccctg acaggggaatt 480
ggtcgtcatc gcccttggga atcaaaatct acggacagat catggaaaaa ccgcttctaa 540

<210> 180
<211> 179
<212> PRT
<213> Neisseria gonorrhoeae

<400> 180
Met Lys Lys Gln Ile Thr Ala Ala Val Met Met Leu Ser Met Ile Ala
1 5 10 15
Pro Ala Met Ala Asn Gly Leu Asp Asn Gln Ala Phe Glu Asp Gln Val
20 25 30
Phe His Thr Arg Ala Asp Ala Pro Met Gln Leu Ala Glu Leu Ser Gln
35 40 45
Lys Glu Met Lys Glu Thr Glu Gly Ala Phe Leu Pro Leu Ala Ile Leu
50 55 60
Gly Gly Ala Ala Ile Gly Met Trp Thr Gln His Gly Phe Ser Tyr Ala
65 70 75 80
Thr Thr Gly Arg Pro Ala Ser Val Arg Asp Val Ala Gly Gly Leu Gly
85 90 95
Ala Ile Pro Gly Asp Val Gly Ala Ala Gly Lys Val Val Ser Phe Ala
100 105 110
Lys Tyr Gly Arg Glu Ile Lys Ile Gly Asn Asn Met Arg Ile Ala Pro

115 120 125

Phe Gly Asn Arg Thr Gly His Pro Ile Gly Lys Phe Pro His Tyr His
130 135 140
Arg Arg Val Thr Asp Asn Thr Gly Lys Thr Leu Pro Gly Gln Gly Ile
145 150 155 160

Gly Arg His Arg Pro Trp Glu Ser Lys Ser Thr Asp Arg Ser Trp Lys
165 170 175

Asn Arg Phe

<210> 181
<211> 251
<212> DNA
<213> Neisseria meningitidis

<400> 181
atgaataaaa ctctctatcg tgtaattttc aaccgcaaac gtgggggtgt grtagccggt 60
gctgaaacta ccaagcgcgga aggtaaaagc tgtgccgata gtgattcagg cagcgctcat 120
gtgaaatctg ttccttttgg tactactcat gcacctgttt gtgcgttaca aatatctttt 180
ctttttcttt attgggcttt tctttatggt tggctgtagg tacggycaat attgcttttg 240
ctgatggcat t 251

<210> 182
<211> 84
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (18)..(18)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (55)..(55)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (76)..(76)
<223> Xaa= any amino acid

<400> 182
Met Asn Lys Thr Leu Tyr Arg Val Ile Phe Asn Arg Lys Arg Gly Ala
1 5 10 15

Val Xaa Ala Val Ala Glu Thr Thr Lys Arg Glu Gly Lys Ser Cys Ala
20 25 30

Asp Ser Asp Ser Gly Ser Ala His Val Lys Ser Val Pro Phe Gly Thr
35 40 45

Thr His Ala Pro Val Cys Xaa Val Thr Asn Ile Phe Ser Phe Ser Leu
50 55 60

Leu Gly Phe Ser Leu Cys Leu Ala Val Gly Thr Xaa Asn Ile Ala Phe
65 70 75 80

Ala Asp Gly Ile

<210> 183
 <211> 249
 <212> DNA
 <213> Neisseria meningitidis

<400> 183
 atgaataaaa ctctctatcg tgtaattttc aaccgcaaac gtggggctgt ggtagccggt 60
 gctgaaacta ccaagcgoga aggtaaaagc tgtgccgata gtgattcagg cagcgctcat 120
 gtgaaatctg ttccttttgg tactactcat gcacctgttt gtcgttcaaa tatcttttct 180
 ttttctttat tgggcttttc tttatgtttg gctgtaggta cggccaatat tgcttttgct 240
 gatggcatt 249

<210> 184
 <211> 83
 <212> PRT
 <213> Neisseria meningitidis

<400> 184
 Met Asn Lys Thr Leu Tyr Arg Val Ile Phe Asn Arg Lys Arg Gly Ala
 1 5 10 15
 Val Val Ala Val Ala Glu Thr Thr Lys Arg Glu Gly Lys Ser Cys Ala
 20 25 30
 Asp Ser Asp Ser Gly Ser Ala His Val Lys Ser Val Pro Phe Gly Thr
 35 40 45
 Thr His Ala Pro Val Cys Arg Ser Asn Ile Phe Ser Phe Ser Leu Leu
 50 55 60
 Gly Phe Ser Leu Cys Leu Ala Val Gly Thr Ala Asn Ile Ala Phe Ala
 65 70 75 80

Asp Gly Ile

<210> 185
 <211> 792
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 185
 Ala Thr Gly Ala Ala Cys Ala Ala Ala Ala Cys Cys Cys Thr Cys Thr
 1 5 10 15
 Ala Thr Cys Gly Thr Gly Thr Gly Ala Thr Thr Thr Thr Cys Ala Ala
 20 25 30
 Cys Cys Gly Cys Ala Ala Ala Cys Gly Cys Gly Gly Thr Gly Cys Thr
 35 40 45
 Gly Thr Gly Gly Thr Ala Gly Cys Thr Gly Thr Thr Gly Cys Cys Gly
 50 55 60

Ala Ala Ala Cys Cys Ala Cys Cys Ala Ala Gly Cys Gly Cys Gly Ala
 65 70 75 80
 Ala Gly Gly Thr Ala Ala Ala Ala Gly Cys Thr Gly Thr Gly Cys Cys
 85 90 95
 Gly Ala Thr Ala Gly Thr Gly Gly Thr Thr Cys Gly Gly Gly Cys Ala
 100 105 110
 Gly Cys Gly Thr Thr Thr Ala Thr Gly Thr Gly Ala Ala Ala Thr Cys
 115 120 125
 Cys Gly Thr Thr Thr Cys Thr Thr Thr Cys Ala Thr Thr Cys Cys Thr
 130 135 140
 Ala Cys Thr Cys Ala Thr Thr Cys Cys Ala Ala Ala Gly Cys Cys Thr
 145 150 155 160
 Thr Thr Thr Gly Thr Thr Thr Thr Thr Cys Thr Gly Cys Ala Thr Thr
 165 170 175
 Ala Gly Gly Cys Thr Thr Thr Thr Cys Thr Thr Thr Ala Thr Gly Thr
 180 185 190
 Thr Thr Gly Gly Cys Thr Thr Thr Gly Gly Gly Thr Ala Cys Gly Gly
 195 200 205
 Thr Cys Ala Ala Thr Ala Thr Thr Gly Cys Thr Thr Thr Thr Gly Cys
 210 215 220
 Thr Gly Ala Cys Gly Gly Cys Ala Thr Thr Ala Thr Thr Ala Cys Thr
 225 230 235 240
 Gly Ala Thr Ala Ala Ala Gly Cys Thr Gly Cys Thr Cys Cys Thr Ala
 245 250 255
 Ala Ala Ala Cys Cys Cys Ala Ala Cys Ala Ala Gly Cys Cys Ala Cys
 260 265 270
 Gly Ala Thr Thr Cys Thr Gly Cys Ala Ala Ala Cys Ala Gly Gly Thr
 275 280 285
 Ala Ala Cys Gly Gly Cys Ala Thr Ala Cys Cys Gly Cys Ala Ala Gly
 290 295 300
 Thr Cys Ala Ala Thr Ala Thr Thr Cys Ala Ala Ala Cys Cys Cys Cys
 305 310 315 320
 Thr Ala Cys Thr Thr Cys Gly Gly Cys Ala Gly Gly Gly Gly Thr Thr
 325 330 335
 Thr Cys Thr Gly Thr Thr Ala Ala Thr Cys Ala Ala Thr Ala Thr Gly
 340 345 350
 Cys Cys Cys Ala Gly Thr Thr Thr Gly Ala Thr Gly Thr Gly Gly Gly

355					360					365						
Thr	Ala	Ala	Thr	Cys	Gly	Cys	Gly	Gly	Gly	Gly	Cys	Gly	Ala	Thr	Thr	
370					375					380						
Thr	Thr	Ala	Ala	Ala	Cys	Ala	Ala	Cys	Ala	Gly	Thr	Cys	Gly	Cys	Ala	
385					390					395					400	
Gly	Cys	Ala	Ala	Cys	Ala	Cys	Cys	Cys	Ala	Ala	Ala	Cys	Ala	Cys	Ala	
405					410					415						
Gly	Cys	Thr	Ala	Gly	Gly	Cys	Gly	Gly	Thr	Thr	Gly	Gly	Ala	Thr	Thr	
420					425					430						
Cys	Ala	Ala	Gly	Gly	Cys	Ala	Ala	Thr	Cys	Cys	Thr	Thr	Gly	Gly	Thr	
435					440					445						
Thr	Gly	Ala	Cys	Ala	Ala	Gly	Gly	Gly	Gly	Cys	Gly	Ala	Ala	Gly	Cys	
450					455					460						
Ala	Cys	Gly	Thr	Gly	Thr	Gly	Gly	Thr	Thr	Gly	Thr	Ala	Ala	Ala	Cys	
465					470					475					480	
Cys	Ala	Ala	Ala	Thr	Cys	Ala	Ala	Cys	Ala	Gly	Cys	Ala	Gly	Cys	Cys	
485					490					495						
Ala	Thr	Cys	Cys	Thr	Thr	Cys	Ala	Cys	Ala	Ala	Cys	Thr	Gly	Ala	Ala	
500					505					510						
Thr	Gly	Gly	Cys	Thr	Ala	Thr	Ala	Thr	Thr	Gly	Ala	Ala	Gly	Thr	Gly	
515					520					525						
Gly	Gly	Thr	Gly	Gly	Ala	Cys	Gly	Ala	Cys	Gly	Thr	Gly	Cys	Ala	Gly	
530					535					540						
Ala	Ala	Gly	Thr	Cys	Gly	Thr	Thr	Ala	Thr	Thr	Gly	Cys	Cys	Ala	Ala	
545					550					555					560	
Thr	Cys	Cys	Gly	Gly	Cys	Ala	Gly	Gly	Gly	Ala	Thr	Thr	Gly	Cys	Ala	
565					570					575						
Gly	Thr	Cys	Ala	Ala	Thr	Gly	Gly	Thr	Gly	Gly	Thr	Gly	Gly	Thr	Thr	
580					585					590						
Thr	Thr	Ala	Thr	Cys	Ala	Ala	Thr	Gly	Cys	Thr	Thr	Cys	Cys	Cys	Gly	
595					600					605						
Thr	Gly	Cys	Cys	Ala	Cys	Thr	Thr	Thr	Gly	Ala	Cys	Gly	Ala	Cys	Ala	
610					615					620						
Gly	Gly	Cys	Cys	Ala	Ala	Cys	Cys	Gly	Cys	Ala	Ala	Thr	Ala	Thr	Cys	
625					630					635					640	
Ala	Ala	Gly	Cys	Ala	Gly	Gly	Ala	Gly	Ala	Cys	Thr	Thr	Thr	Ala	Gly	
645					650					655						

Cys Gly Gly Cys Thr Thr Thr Ala Ala Gly Ala Thr Ala Ala Gly Gly
660, 665 670

Cys Ala Ala Gly Gly Cys Ala Ala Thr Gly Cys Thr Gly Thr Ala Ala
675 680 685

Thr Cys Gly Cys Cys Gly Gly Ala Cys Ala Cys Gly Gly Thr Thr Thr
690 695 700

Gly Gly Ala Thr Gly Cys Cys Cys Gly Thr Gly Ala Thr Ala Cys Cys
705 710 715 720

Gly Ala Thr Thr Thr Cys Ala Cys Ala Cys Gly Thr Ala Thr Thr Cys
725 730 735

Thr Thr Gly Thr Ala Thr Gly Cys Cys Ala Ala Cys Ala Ala Ala Ala
740 745 750

Thr Cys Ala Cys Cys Thr Thr Gly Ala Thr Cys Ala Gly Thr Ala Cys
755 760 765

Gly Gly Cys Cys Gly Ala Ala Cys Ala Ala Gly Cys Ala Gly Gly Cys
770 775 780

Ala Thr Thr Cys Gly Thr Ala Ala
785 790

<210> 186

<211> 263

<212> PRT

<213> Neisseria gonorrhoeae

<400> 186

Met Asn Lys Thr Leu Tyr Arg Val Ile Phe Asn Arg Lys Arg Gly Ala
1 5 10 15

Val Val Ala Val Ala Glu Thr Thr Lys Arg Glu Gly Lys Ser Cys Ala
20 25 30

Asp Ser Gly Ser Gly Ser Val Tyr Val Lys Ser Val Ser Phe Ile Pro
35 40 45

Thr His Ser Lys Ala Phe Cys Phe Ser Ala Leu Gly Phe Ser Leu Cys
50 55 60

Leu Ala Leu Gly Thr Val Asn Ile Ala Phe Ala Asp Gly Ile Ile Thr
65 70 75 80

Asp Lys Ala Ala Pro Lys Thr Gln Gln Ala Thr Ile Leu Gln Thr Gly
85 90 95

Asn Gly Ile Pro Gln Val Asn Ile Gln Thr Pro Thr Ser Ala Gly Val
100 105 110

Ser Val Asn Gln Tyr Ala Gln Phe Asp Val Gly Asn Arg Gly Ala Ile
115 120 125

Leu Asn Asn Ser Arg Ser Asn Thr Gln Thr Gln Leu Gly Gly Trp Ile
 130 135 140
 Gln Gly Asn Pro Trp Leu Thr Arg Gly Glu Ala Arg Val Val Val Asn
 145 150 155 160
 Gln Ile Asn Ser Ser His Pro Ser Gln Leu Asn Gly Tyr Ile Glu Val
 165 170 175
 Gly Gly Arg Arg Ala Glu Val Val Ile Ala Asn Pro Ala Gly Ile Ala
 180 185 190
 Val Asn Gly Gly Gly Phe Ile Asn Ala Ser Arg Ala Thr Leu Thr Thr
 195 200 205
 Gly Gln Pro Gln Tyr Gln Ala Gly Asp Phe Ser Gly Phe Lys Ile Arg
 210 215 220
 Gln Gly Asn Ala Val Ile Ala Gly His Gly Leu Asp Ala Arg Asp Thr
 225 230 235 240
 Asp Phe Thr Arg Ile Leu Val Cys Gln Gln Asn His Leu Asp Gln Tyr
 245 250 255
 Gly Arg Thr Ser Arg His Ser
 260

<210> 187
 <211> 243
 <212> DNA
 <213> Neisseria meningitidis

<400> 187
 atgaatactc ctccttttgt ctgttggatt ttttgcaagg tcatcgacaa tttcggcgac 60
 atcggcggtt cgtggcggtt cgcccgtgtt ttgcaccgag aactcggttg gcagggtgcat 120
 ttgtggacgg acgatgtgtc cgccttgcgt gcgctttgcc ctgatttgcc cgatgttccc 180
 tgcgttcacg aggatattca tgtccgcact tggcattccg atgcggcaga tattgatacc 240
 gcg 243

<210> 188
 <211> 81
 <212> PRT
 <213> Neisseria meningitidis

<400> 188
 Met Asn Thr Pro Pro Phe Val Cys Trp Ile Phe Cys Lys Val Ile Asp
 1 5 10 15
 Asn Phe Gly Asp Ile Gly Val Ser Trp Arg Leu Ala Arg Val Leu His
 20 25 30
 Arg Glu Leu Gly Trp Gln Val His Leu Trp Thr Asp Asp Val Ser Ala
 35 40 45
 Leu Arg Ala Leu Cys Pro Asp Leu Pro Asp Val Pro Cys Val His Gln

50 55 60
 Asp Ile His Val Arg Thr Trp His Ser Asp Ala Ala Asp Ile Asp Thr
 65 70 75 80

Ala

<210> 189
 <211> 1149
 <212> DNA
 <213> Neisseria meningitidis

<400> 189
 atgaatactc ctccctttgt ctgttggatt ttttgcaagg tcatcgacaa tttcggcgac 60
 atcggcggtt cgtggcggct cgcccggtt ttgcaccgag aactcgggtg gcaggtgcat 120
 ttgtggacgg acgatgtgtc cgccttgctt gcgctttgcc ctgatttgcc cgatgttccc 180
 tgcgttcacg aggatattca tgtccgcact tggcattccg atgcggcaga tattgatacc 240
 gcgcctgttc ccgatgtcgt catcgaaact tttgcctgcg acctgcccga aaatgtgctg 300
 cacattatcc gccgacacaa gccgctttgg ctgaattggg aatatttgag cgcgaggaa 360
 agcaatgaaa ggctgcatct gatgccttcg ccgcaggagg gtgttcaaaa atatttttgg 420
 tttatgggtt tcagcgaaaa aagcggcggg ttgatacgcg aacgtgatta ctgcgaagcc 480
 gtccgtttcg atactgaagc cctgcgagag cggctgatgc tgcccgaaaa aaacgcctcc 540
 gaatggctgc ttttcggcta tcggagcgat gtttgggcaa agtggctgga aatgtggcga 600
 caggcaggca gcccgatgac actgttgctg gcggggacgc aaatcatcga cagcctcaaa 660
 caaagcggcg ttattccgca agatgccctg caaaacgacg gcgatgtttt tcagacggca 720
 tccgtccgcc tcgtcaaaat ccctttcgtg ccgcaacagg acttcgacca actgctgcac 780
 cttgccgact gcgccgtcat ccgcggcgaa gacagtttcg tgcgcgcccga gcttgcgggc 840
 aaacccttct tttggcacat ctaccgcgaa gacgagaatg tccatctcga caaactccac 900
 gccttttggg ataaggcaca cggtttctac acgcccga aa cgtgtcggc acaccgccgt 960
 ctttcggacg acctcaacgg cggagaggct ttatccgcaa cacaacgcct cgaatgttgg 1020
 caaaccttgc aacaacatca aaacggctgg cggcaaggcg cggaggattg gagccgttat 1080
 cttttcgggc agccgtcagc tcctgaaaaa ctgcgtgcct ttgtttcaaa gcatcaaaaa 1140
 atacgctag 1149

<210> 190
 <211> 383
 <212> PRT
 <213> Neisseria meningitidis

<400> 190
 Met Asn Thr Pro Pro Phe Val Cys Trp Ile Phe Cys Lys Val Ile Asp
 1 5 10 15
 Asn Phe Gly Asp Ile Gly Val Ser Trp Arg Leu Ala Arg Val Leu His
 20 25 30
 Arg Glu Leu Gly Trp Gln Val His Leu Trp Thr Asp Asp Val Ser Ala
 35 40 45
 Leu Arg Ala Leu Cys Pro Asp Leu Pro Asp Val Pro Cys Val His Gln
 50 55 60
 Asp Ile His Val Arg Thr Trp His Ser Asp Ala Ala Asp Ile Asp Thr
 65 70 75 80

Ala Pro Val Pro Asp Val Val Ile Glu Thr Phe Ala Cys Asp Leu Pro
 85 90 95
 Glu Asn Val Leu His Ile Ile Arg Arg His Lys Pro Leu Trp Leu Asn
 100 105 110
 Trp Glu Tyr Leu Ser Ala Glu Glu Ser Asn Glu Arg Leu His Leu Met
 115 120 125
 Pro Ser Pro Gln Glu Gly Val Gln Lys Tyr Phe Trp Phe Met Gly Phe
 130 135 140
 Ser Glu Lys Ser Gly Gly Leu Ile Arg Glu Arg Asp Tyr Cys Glu Ala
 145 150 155 160
 Val Arg Phe Asp Thr Glu Ala Leu Arg Glu Arg Leu Met Leu Pro Glu
 165 170 175
 Lys Asn Ala Ser Glu Trp Leu Leu Phe Gly Tyr Arg Ser Asp Val Trp
 180 185 190
 Ala Lys Trp Leu Glu Met Trp Arg Gln Ala Gly Ser Pro Met Thr Leu
 195 200 205
 Leu Leu Ala Gly Thr Gln Ile Ile Asp Ser Leu Lys Gln Ser Gly Val
 210 215 220
 Ile Pro Gln Asp Ala Leu Gln Asn Asp Gly Asp Val Phe Gln Thr Ala
 225 230 235 240
 Ser Val Arg Leu Val Lys Ile Pro Phe Val Pro Gln Gln Asp Phe Asp
 245 250 255
 Gln Leu Leu His Leu Ala Asp Cys Ala Val Ile Arg Gly Glu Asp Ser
 260 265 270
 Phe Val Arg Ala Gln Leu Ala Gly Lys Pro Phe Phe Trp His Ile Tyr
 275 280 285
 Pro Gln Asp Glu Asn Val His Leu Asp Lys Leu His Ala Phe Trp Asp
 290 295 300
 Lys Ala His Gly Phe Tyr Thr Pro Glu Thr Val Ser Ala His Arg Arg
 305 310 315 320
 Leu Ser Asp Asp Leu Asn Gly Gly Glu Ala Leu Ser Ala Thr Gln Arg
 325 330 335
 Leu Glu Cys Trp Gln Thr Leu Gln Gln His Gln Asn Gly Trp Arg Gln
 340 345 350
 Gly Ala Glu Asp Trp Ser Arg Tyr Leu Phe Gly Gln Pro Ser Ala Pro
 355 360 365
 Glu Lys Leu Ala Ala Phe Val Ser Lys His Gln Lys Ile Arg Trp
 370 375 380

<210> 191
<211> 1149
<212> DNA
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (28)..(28)
<223> N= Unknown

<220>
<221> misc_feature
<222> (179)..(179)
<223> N= Unknown

<220>
<221> misc_feature
<222> (251)..(251)
<223> N= Unknown

<220>
<221> misc_feature
<222> (336)..(336)
<223> N= Unknown

<220>
<221> misc_feature
<222> (360)..(360)
<223> N= Unknown

<220>
<221> misc_feature
<222> (379)..(379)
<223> N= Unknown

<220>
<221> misc_feature
<222> (407)..(407)
<223> N= Unknown

<220>
<221> misc_feature
<222> (414)..(414)
<223> N= Unknown

<220>
<221> misc_feature
<222> (439)..(441)
<223> N= Unknown

<220>
<221> misc_feature
<222> (536)..(536)
<223> N= Unknown

<220>

<221> misc_feature
 <222> (633)..(633)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (642)..(642)
 <223> N= Unknown

<400> 191
 atgaatactc ctccttttttc tgctggantt ttttgcaagg tcatcgacaa tttcggcgac 60
 atcggcggtt cgtggcggtt tgcccgtgtt ttgcaccgag aactcgggtg gcaggtgcat 120
 ttgtggacgg acgatgtgtc cgccttgctt gcgctttgcc ctgatattgcc cgatgttcnc 180
 tgcgttcatac aggatattca tgcgcgactc tggcattccg atgcggcaga tattgatacc 240
 gcgcctgttc negatgtcgt catcgaaact tttgcctgag acctgcccga aaatgtgctg 300
 cacatcatcc gccgacacaa gccgctttgg ctgaantggg aatatttgag cgcggaggan 360
 agcaatgaaa ggctgcacnt gatgccttcg ccgcaggaga gtgttcnaaa atanttttgg 420
 tttatgggtt tcagcgaann naggcggcga ctgatacgag aacgcgatta ctgcgaagcc 480
 gtccgttttc atagcggagc cttgcgcaag aggtgatgac ttcccgaata aaacgncccc 540
 gaatggctgc ttttcggcta tcggagcgat gtttgggcaa agtggctgga aatgtggcga 600
 caggcaggca gtccgttgac acttttgctg gcnggggagc anattatcga cagcctcaaa 660
 caaaacggcg ttattccgca agatgccctg caaaacgagc gcgatgtttt tcagacggca 720
 tccgtccgcc tcgtcaaaat ccttttcgtg ccgcaacagg acttcgacaa actgctgcac 780
 cttgcgactc gcgcgctcat ccgcggcgaa gacagtttcg tgcgcgcca gcttgcgggc 840
 aaacccttct tttggcacat ctaccgcaa gatgagaatg tccatctcga caaactccac 900
 gccttttggg ataaggcaca cggtttctac acgcccga aa cgcacatcggc acaccgcccg 960
 ctttcagacg acctcaacgg cggagaggct ttatccgcaa cacaacgcct cgaatgttgg 1020
 caaatcctgc aacaacatca aaacggctgg cggcaaggcg cggaggattg gagccgttat 1080
 ctttttgggc agccttccgc atccgaaaaa ctgcgcgcct ttgtttcaaa gcatcaaaaa 1140
 atacgctag 1149

<210> 192
 <211> 382
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (10)..(10)
 <223> Xaa= Unknown

<220>
 <221> misc_feature
 <222> (60)..(60)
 <223> Xaa= Unknown

<220>
 <221> misc_feature
 <222> (84)..(84)
 <223> Xaa= Unknown

<220>
 <221> misc_feature
 <222> (112)..(112)
 <223> Xaa= Unknown

<220>
 <221> misc_feature
 <222> (120)..(120)
 <223> Xaa= Unknown

<220>
 <221> misc_feature
 <222> (127)..(127)
 <223> Xaa= Unknown

<220>
 <221> misc_feature
 <222> (136)..(136)
 <223> Xaa= Unknown

<220>
 <221> misc_feature
 <222> (138)..(138)
 <223> Xaa= Unknown

<220>
 <221> misc_feature
 <222> (147)..(147)
 <223> Xaa= Unknown

<220>
 <221> misc_feature
 <222> (179)..(179)
 <223> Xaa= Unknown

<220>
 <221> misc_feature
 <222> (214)..(214)
 <223> Xaa= Unknown

<400> 192
 Met Asn Thr Pro Pro Phe Ser Ala Gly Xaa Phe Cys Lys Val Ile Asp
 1 5 10 15
 Asn Phe Gly Asp Ile Gly Val Ser Trp Arg Leu Ala Arg Val Leu His
 20 25 30
 Arg Glu Leu Gly Trp Gln Val His Leu Trp Thr Asp Asp Val Ser Ala
 35 40 45
 Leu Arg Ala Leu Cys Pro Asp Leu Pro Asp Val Xaa Cys Val His Gln
 50 55 60
 Asp Ile His Val Arg Thr Trp His Ser Asp Ala Ala Asp Ile Asp Thr
 65 70 75 80
 Ala Pro Val Xaa Asp Val Val Ile Glu Thr Phe Ala Cys Asp Leu Pro
 85 90 95

Glu Asn Val Leu His Ile Ile Arg Arg His Lys Pro Leu Trp Leu Xaa
100 105 110

Trp Glu Tyr Leu Ser Ala Glu Xaa Ser Asn Glu Arg Leu His Xaa Met
115 120 125

Pro Ser Pro Gln Glu Ser Val Xaa Lys Xaa Phe Trp Phe Met Gly Phe
130 135 140

Ser Glu Xaa Ser Gly Gly Leu Ile Arg Glu Arg Asp Tyr Cys Glu Ala
145 150 155 160

Val Arg Phe Asp Ser Gly Ala Leu Arg Lys Arg Leu Met Leu Pro Glu
165 170 175

Lys Asn Xaa Pro Glu Trp Leu Leu Phe Gly Tyr Arg Ser Asp Val Trp
180 185 190

Ala Lys Trp Leu Glu Met Trp Arg Gln Ala Gly Ser Pro Leu Thr Leu
195 200 205

Leu Leu Ala Gly Ala Xaa Ile Ile Asp Ser Leu Lys Gln Asn Gly Val
210 215 220

Ile Pro Gln Asp Ala Leu Gln Asn Asp Gly Asp Val Phe Gln Thr Ala
225 230 235 240

Ser Val Arg Leu Val Lys Ile Pro Phe Val Pro Gln Gln Asp Phe Asp
245 250 255

Lys Leu Leu His Leu Ala Asp Cys Ala Val Ile Arg Gly Glu Asp Ser
260 265 270

Phe Val Arg Ala Gln Leu Ala Gly Lys Pro Phe Phe Trp His Ile Tyr
275 280 285

Pro Gln Asp Glu Asn Val His Leu Asp Lys Leu His Ala Phe Trp Asp
290 295 300

Lys Ala His Gly Phe Tyr Thr Pro Glu Thr Ala Ser Ala His Arg Arg
305 310 315 320

Leu Ser Asp Asp Leu Asn Gly Gly Glu Ala Leu Ser Ala Thr Gln Arg
325 330 335

Leu Glu Cys Trp Gln Ile Leu Gln Gln His Gln Asn Gly Trp Arg Gln
340 345 350

Gly Ala Glu Asp Trp Ser Arg Tyr Leu Phe Gly Gln Pro Ser Ala Ser
355 360 365

Glu Lys Leu Ala Ala Phe Val Ser Lys His Gln Lys Ile Arg
370 375 380

<210> 193

<211> 8

<212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 193
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<210> 194
 <211> 345
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 194
 Met Val Met Asn Thr Tyr Ala Phe Pro Val Cys Trp Ile Phe Cys Lys
 1 5 10 15
 Val Ile Asp Asn Phe Gly Asp Ile Gly Val Ser Trp Arg Leu Ala Arg
 20 25 30
 Val Leu His Arg Glu Leu Gly Trp Gln Val His Leu Trp Thr Asp Asp
 35 40 45
 Val Ser Ala Leu Arg Ala Leu Cys Pro Asp Leu Pro Asp Val Pro Phe
 50 55 60
 Val His Gln Asp Ile His Val Arg Thr Trp His Ser Asp Ala Ala Asp
 65 70 75 80
 Ile Asp Thr Ala Pro Val Pro Asp Ala Val Ile Glu Thr Phe Ala Cys
 85 90 95
 Asp Leu Pro Glu Asn Val Leu Asn Ile Ile Arg Arg His Lys Pro Leu
 100 105 110
 Trp Leu Asn Trp Glu Tyr Leu Ser Ala Glu Glu Ser Asn Glu Arg Leu
 115 120 125
 His Leu Met Pro Ser Pro Gln Glu Gly Val Gln Lys Tyr Phe Trp Phe
 130 135 140
 Met Gly Phe Ser Glu Lys Ser Gly Gly Leu Ile Arg Glu Arg Asp Tyr
 145 150 155 160
 Arg Glu Ala Val Arg Phe Asp Thr Glu Ala Leu Arg Arg Arg Leu Val
 165 170 175
 Leu Pro Glu Lys Asn Ala Pro Glu Trp Leu Leu Phe Gly Tyr Arg Gly
 180 185 190
 Asp Val Trp Ala Lys Trp Leu Asp Met Trp Gln Gln Ala Gly Ser Leu
 195 200 205

Met Thr Leu Leu Leu Ala Gly Ala Gln Ile Ile Asp Ser Leu Lys Gln
 210 215 220

Ser Gly Val Ile Pro Gln Asn Ala Leu Gln Asn Glu Gly Gly Val Phe
 225 230 235 240

Gln Thr Ala Ser Val Arg Leu Val Lys Ile Pro Phe Val Pro Gln Gln
 245 250 255

Asp Phe Asp Lys Leu Leu His Leu Ala Asp Cys Ala Val Ile Arg Gly
 260 265 270

Glu Asp Ser Phe Val Arg Thr Gln Leu Ala Gly Lys Pro Phe Phe Trp
 275 280 285

His Ile Tyr Pro Gln Asp Glu Asn Val His Leu Asp Lys Leu His Ala
 290 295 300

Phe Trp Asp Lys Ala Tyr Gly Phe Tyr Thr Pro Glu Thr Ala Ser Val
 305 310 315 320

His Arg Leu Leu Ser Asp Asp Leu Asn Gly Gly Glu Ala Leu Ser Ala
 325 330 335

Thr Gln Arg Leu Glu Cys Gly Val Leu
 340 345

<210> 195
 <211> 1152
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 195
 Ala Thr Gly Ala Ala Thr Ala Cys Ala Thr Ala Cys Gly Cys Thr Thr
 1 5 10 15

Thr Thr Cys Cys Thr Gly Thr Cys Thr Gly Thr Thr Gly Gly Ala Thr
 20 25 30

Thr Thr Thr Thr Thr Gly Cys Ala Ala Gly Gly Thr Cys Ala Thr Cys
 35 40 45

Gly Ala Cys Ala Ala Thr Thr Thr Cys Gly Gly Cys Gly Ala Cys Ala
 50 55 60

Thr Cys Gly Gly Cys Gly Thr Thr Thr Cys Gly Thr Gly Gly Cys Gly
 65 70 75 80

Gly Cys Thr Cys Gly Cys Cys Cys Gly Thr Gly Thr Thr Thr Thr Gly
 85 90 95

Cys Ala Cys Cys Gly Cys Gly Ala Ala Cys Thr Cys Gly Gly Thr Thr
 100 105 110

Gly Gly Cys Ala Gly Gly Thr Gly Cys Ala Thr Thr Thr Gly Thr Gly
 115 120 125
 Gly Ala Cys Gly Gly Ala Cys Gly Ala Cys Gly Thr Gly Thr Cys Cys
 130 135 140
 Gly Cys Cys Thr Thr Gly Cys Gly Cys Gly Cys Gly Cys Thr Thr Thr
 145 150 155 160
 Gly Thr Cys Cys Cys Gly Ala Thr Thr Thr Gly Cys Cys Cys Gly Ala
 165 170 175
 Thr Gly Thr Thr Cys Cys Cys Thr Thr Cys Gly Thr Thr Cys Ala Thr
 180 185 190
 Cys Ala Gly Gly Ala Thr Ala Thr Thr Cys Ala Thr Gly Thr Cys Cys
 195 200 205
 Gly Cys Ala Cys Thr Thr Gly Gly Cys Ala Thr Thr Cys Cys Gly Ala
 210 215 220
 Thr Gly Cys Gly Gly Cys Ala Gly Ala Cys Ala Thr Thr Gly Ala Thr
 225 230 235 240
 Ala Cys Cys Gly Cys Gly Cys Cys Cys Gly Thr Thr Cys Cys Cys Gly
 245 250 255
 Ala Thr Gly Cys Cys Gly Thr Thr Ala Thr Cys Gly Ala Ala Ala Cys
 260 265 270
 Thr Thr Thr Thr Gly Cys Cys Thr Gly Cys Gly Ala Cys Cys Thr Gly
 275 280 285
 Cys Cys Cys Gly Ala Ala Ala Ala Thr Gly Thr Gly Cys Thr Gly Ala
 290 295 300
 Ala Cys Ala Thr Cys Ala Thr Cys Cys Gly Cys Cys Gly Ala Cys Ala
 305 310 315 320
 Cys Ala Ala Ala Cys Cys Gly Cys Thr Thr Thr Gly Gly Cys Thr Gly
 325 330 335
 Ala Ala Thr Thr Gly Gly Gly Ala Ala Thr Ala Thr Thr Thr Gly Ala
 340 345 350
 Gly Cys Gly Cys Gly Gly Ala Gly Gly Ala Ala Ala Gly Cys Ala Ala
 355 360 365
 Thr Gly Ala Ala Ala Gly Gly Cys Thr Gly Cys Ala Cys Cys Thr Gly
 370 375 380
 Ala Thr Gly Cys Cys Thr Thr Cys Gly Cys Cys Gly Cys Ala Gly Gly
 385 390 395 400
 Ala Gly Gly Gly Cys Gly Thr Thr Cys Ala Ala Ala Ala Ala Thr Ala
 405 410 415

Thr Thr Thr Thr Thr Gly Gly Thr Thr Thr Ala Thr Gly Gly Gly Thr
 420 425 430
 Thr Thr Cys Ala Gly Cys Gly Ala Ala Ala Ala Ala Ala Gly Cys Gly
 435 440 445
 Gly Cys Gly Gly Gly Thr Thr Gly Ala Thr Ala Cys Gly Cys Gly Ala
 450 455 460
 Ala Cys Gly Cys Gly Ala Thr Thr Ala Cys Cys Gly Cys Gly Ala Ala
 465 470 475 480
 Gly Cys Cys Gly Thr Cys Cys Gly Thr Thr Thr Cys Gly Ala Thr Ala
 485 490 495
 Cys Cys Gly Ala Ala Gly Cys Cys Cys Thr Gly Cys Gly Cys Cys Gly
 500 505 510
 Gly Cys Gly Gly Cys Thr Gly Gly Thr Gly Cys Thr Gly Cys Cys Cys
 515 520 525
 Gly Ala Ala Ala Ala Ala Ala Ala Ala Cys Gly Cys Cys Cys Cys Gly
 530 535 540
 Ala Ala Thr Gly Gly Cys Thr Gly Cys Thr Thr Thr Thr Cys Gly Gly
 545 550 555 560
 Cys Thr Ala Thr Cys Gly Gly Gly Gly Cys Gly Ala Thr Gly Thr Thr
 565 570 575
 Thr Gly Gly Gly Cys Ala Ala Ala Gly Thr Gly Gly Cys Thr Gly Gly
 580 585 590
 Ala Cys Ala Thr Gly Thr Gly Gly Cys Ala Ala Cys Ala Gly Gly Cys
 595 600 605
 Ala Gly Gly Cys Ala Gly Cys Cys Thr Gly Ala Thr Gly Ala Cys Cys
 610 615 620
 Cys Thr Ala Cys Thr Gly Cys Thr Gly Gly Cys Gly Gly Gly Gly Gly
 625 630 635 640
 Cys Gly Cys Ala Ala Ala Thr Thr Ala Thr Cys Gly Ala Cys Ala Gly
 645 650 655
 Cys Cys Thr Cys Ala Ala Ala Cys Ala Ala Ala Gly Cys Gly Gly Cys
 660 665 670
 Gly Thr Thr Ala Thr Thr Cys Cys Gly Cys Ala Ala Ala Ala Cys Gly
 675 680 685
 Cys Cys Cys Thr Gly Cys Ala Ala Ala Ala Thr Gly Ala Ala Gly Gly
 690 695 700
 Cys Gly Gly Thr Gly Thr Cys Thr Thr Thr Cys Ala Gly Ala Cys Gly

705		710		715		720
Gly Cys Ala Thr	Cys Cys Gly Thr	Cys Cys Gly Cys Cys Thr Thr Gly				
	725		730			735
Thr Cys Ala Ala	Ala Ala Thr Cys	Cys Cys Cys Gly Thr Thr Cys Gly Thr				
	740		745			750
Gly Cys Cys Gly	Cys Ala Ala Cys	Ala Gly Gly Ala Cys Thr Thr Cys				
	755		760			765
Gly Ala Cys Ala	Ala Ala Thr Thr	Gly Cys Thr Gly Cys Ala Cys Cys				
	770		775			780
Thr Cys Gly Cys	Cys Gly Ala Cys	Thr Gly Cys Gly Cys Cys Gly Thr				
	785		790			800
Gly Ala Thr Ala	Cys Gly Cys Gly	Gly Cys Gly Ala Ala Gly Ala Cys				
	805		810			815
Ala Gly Thr Thr	Thr Cys Gly Thr	Gly Cys Gly Thr Ala Cys Cys Cys				
	820		825			830
Ala Gly Cys Thr	Thr Gly Cys Cys	Gly Gly Ala Ala Ala Ala Cys Cys				
	835		840			845
Cys Thr Thr Thr	Thr Thr Thr Thr	Gly Gly Cys Ala Cys Ala Thr Cys				
	850		855			860
Thr Ala Cys Cys	Cys Gly Cys Ala	Ala Gly Ala Cys Gly Ala Gly Ala				
	865		870			875
Ala Thr Gly Thr	Cys Cys Ala Thr	Cys Thr Cys Gly Ala Cys Ala Ala				
	885		890			895
Ala Cys Thr Cys	Cys Ala Cys Gly	Cys Cys Thr Thr Thr Thr Gly Gly				
	900		905			910
Gly Ala Thr Ala	Ala Gly Gly Cys	Ala Thr Ala Cys Gly Gly Cys Thr				
	915		920			925
Thr Cys Thr Ala	Cys Ala Cys Gly	Cys Cys Cys Gly Ala Ala Ala Cys				
	930		935			940
Cys Gly Cys Ala	Thr Cys Gly Gly	Thr Gly Cys Ala Cys Cys Gly Cys				
	945		950			955
Cys Thr Cys Cys	Thr Thr Thr Cys	Gly Gly Ala Cys Gly Ala Cys Cys				
	965		970			975
Thr Cys Ala Ala	Cys Gly Gly Cys	Gly Gly Ala Gly Ala Gly Gly Cys				
	980		985			990
Thr Thr Thr Ala	Thr Cys Cys Gly	Cys Ala Ala Cys Ala Cys Ala Ala				
	995		1000			1005

Cys Gly Cys Cys Thr Cys Gly Ala Ala Thr Gly Thr Thr Gly Gly
 1010 1015 1020

Cys Ala Ala Ala Cys Cys Cys Thr Gly Cys Ala Ala Cys Ala Ala
 1025 1030 1035

Cys Ala Thr Cys Ala Ala Ala Ala Cys Gly Gly Cys Thr Gly Gly
 1040 1045 1050

Cys Gly Gly Cys Ala Ala Gly Gly Cys Gly Cys Gly Gly Ala Gly
 1055 1060 1065

Gly Ala Thr Thr Gly Gly Ala Gly Cys Cys Gly Thr Thr Ala Thr
 1070 1075 1080

Cys Thr Thr Thr Thr Cys Gly Gly Gly Cys Ala Gly Cys Cys Thr
 1085 1090 1095

Thr Cys Cys Gly Cys Ala Thr Cys Cys Gly Ala Ala Ala Ala Ala
 1100 1105 1110

Cys Thr Cys Gly Cys Cys Gly Cys Cys Thr Thr Thr Gly Thr Thr
 1115 1120 1125

Thr Cys Ala Ala Ala Gly Cys Ala Thr Cys Ala Ala Ala Ala Ala
 1130 1135 1140

Ala Thr Ala Cys Gly Cys Thr Ala Gly
 1145 1150

<210> 196
 <211> 383
 <212> PRT
 <213> Neisseria meningitidis

<400> 196
 Met Asn Thr Tyr Ala Phe Pro Val Cys Trp Ile Phe Cys Lys Val Ile
 1 5 10 15

Asp Asn Phe Gly Asp Ile Gly Val Ser Trp Arg Leu Ala Arg Val Leu
 20 25 30

His Arg Glu Leu Gly Trp Gln Val His Leu Trp Thr Asp Asp Val Ser
 35 40 45

Ala Leu Arg Ala Leu Cys Pro Asp Leu Pro Asp Val Pro Phe Val His
 50 55 60

Gln Asp Ile His Val Arg Thr Trp His Ser Asp Ala Ala Asp Ile Asp
 65 70 75 80

Thr Ala Pro Val Pro Asp Ala Val Ile Glu Thr Phe Ala Cys Asp Leu
 85 90 95

Pro Glu Asn Val Leu Asn Ile Ile Arg Arg His Lys Pro Leu Trp Leu
 100 105 110

Asn	Trp	Glu	Tyr	Leu	Ser	Ala	Glu	Glu	Ser	Asn	Glu	Arg	Leu	His	Leu	115	120	125	
Met	Pro	Ser	Pro	Gln	Glu	Gly	Val	Gln	Lys	Tyr	Phe	Trp	Phe	Met	Gly	130	135	140	
Phe	Ser	Glu	Lys	Ser	Gly	Gly	Leu	Ile	Arg	Glu	Arg	Asp	Tyr	Arg	Glu	145	150	155	160
Ala	Val	Arg	Phe	Asp	Thr	Glu	Ala	Leu	Arg	Arg	Arg	Leu	Val	Leu	Pro	165	170	175	
Glu	Lys	Asn	Ala	Pro	Glu	Trp	Leu	Leu	Phe	Gly	Tyr	Arg	Gly	Asp	Val	180	185	190	
Trp	Ala	Lys	Trp	Leu	Asp	Met	Trp	Gln	Gln	Ala	Gly	Ser	Leu	Met	Thr	195	200	205	
Leu	Leu	Leu	Ala	Gly	Ala	Gln	Ile	Ile	Asp	Ser	Leu	Lys	Gln	Ser	Gly	210	215	220	
Val	Ile	Pro	Gln	Asn	Ala	Leu	Gln	Asn	Glu	Gly	Gly	Val	Phe	Gln	Thr	225	230	235	240
Ala	Ser	Val	Arg	Leu	Val	Lys	Ile	Pro	Phe	Val	Pro	Gln	Gln	Asp	Phe	245	250	255	
Asp	Lys	Leu	Leu	His	Leu	Ala	Asp	Cys	Ala	Val	Ile	Arg	Gly	Glu	Asp	260	265	270	
Ser	Phe	Val	Arg	Thr	Gln	Leu	Ala	Gly	Lys	Pro	Phe	Phe	Trp	His	Ile	275	280	285	
Tyr	Pro	Gln	Asp	Glu	Asn	Val	His	Leu	Asp	Lys	Leu	His	Ala	Phe	Trp	290	295	300	
Asp	Lys	Ala	Tyr	Gly	Phe	Tyr	Thr	Pro	Glu	Thr	Ala	Ser	Val	His	Arg	305	310	315	320
Leu	Leu	Ser	Asp	Asp	Leu	Asn	Gly	Gly	Glu	Ala	Leu	Ser	Ala	Thr	Gln	325	330	335	
Arg	Leu	Glu	Cys	Trp	Gln	Thr	Leu	Gln	Gln	His	Gln	Asn	Gly	Trp	Arg	340	345	350	
Gln	Gly	Ala	Glu	Asp	Trp	Ser	Arg	Tyr	Leu	Phe	Gly	Gln	Pro	Ser	Ala	355	360	365	
Ser	Glu	Lys	Leu	Ala	Ala	Phe	Val	Ser	Lys	His	Gln	Lys	Ile	Arg		370	375	380	

<210> 197

<211> 428

<212> DNA

<213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (15)..(15)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (59)..(59)
 <223> N= Unknown

<220>
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 <222> (97)..(97)
 <223> N= Unknown

<220>
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 <222> (136)..(136)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (394)..(394)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (410)..(410)
 <223> N= Unknown

<400> 197
 ttgttctgc gtgtnaaagt ggggcgtttt ttcagcagtc cggcgacgtg gtttcgggnc 60
 aaagaccctg taaatcaggc ggtgttgccg ctgtatnccg acgagtggcg gcaacttcgg 120
 tacgttgga aatagncgca acgtcgca gacctgtggct ctgcacgctg ctcggaatgc 180
 tgggtgcggt attgttgctg cttttggtgc ggcaatatac gttcaactgg gaaagcacgc 240
 tgttgagcaa tgccgcttcg gtacgcgcgg tggaaatggt ggcattggctg ccgtcgaaac 300
 tcggtttccc tgtcccgat gcgcggctcg tcatcgagg ccgtctgaac ggcaatattg 360
 ccgatgcgcg ggcttggtcg gggctgctgg tcgncagtat cgctgctan ggcattctgc 420
 cgcgctcg 428

<210> 198
 <211> 143
 <212> PRT
 <213> Neisseria meningitidis

<220>
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 <222> (20)..(20)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (33)..(33)
 <223> Xaa= any amino acid

<220>
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 <222> (38)..(38)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (46)..(46)
 <223> Xaa= any amino acid

<220>

<221> misc_feature
 <222> (132)..(132)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (137)..(137)
 <223> Xaa= any amino acid

<400> 198
 Leu Phe Leu Arg Val Lys Val Gly Arg Phe Phe Ser Ser Pro Ala Thr
 1 5 10 15
 Trp Phe Arg Xaa Lys Asp Pro Val Asn Gln Ala Val Leu Arg Leu Tyr
 20 25 30
 Xaa Asp Glu Trp Arg Xaa Thr Ser Val Arg Trp Lys Ile Xaa Ala Thr
 35 40 45
 Ser His Ser Leu Trp Leu Cys Thr Leu Leu Gly Met Leu Val Ser Val
 50 55 60
 Leu Leu Leu Leu Leu Val Arg Gln Tyr Thr Phe Asn Trp Glu Ser Thr
 65 70 75 80
 Leu Leu Ser Asn Ala Ala Ser Val Arg Ala Val Glu Met Leu Ala Trp
 85 90 95
 Leu Pro Ser Lys Leu Gly Phe Pro Val Pro Asp Ala Arg Ser Val Ile
 100 105 110
 Glu Gly Arg Leu Asn Gly Asn Ile Ala Asp Ala Arg Ala Trp Ser Gly
 115 120 125
 Leu Leu Val Xaa Ser Ile Ala Cys Xaa Gly Ile Leu Pro Arg Leu
 130 135 140

<210> 199
 <211> 1341
 <212> DNA
 <213> Neisseria meningitidis

<400> 199
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atcttcagcg	gcatcccg	acagggcagc	gaggtcttgc	gccgcgtgga	cggcagtagc	120
gaggaaaaaa	tcacccgctg	ggcggagatg	attgacagga	accgtatgct	gcgggagacg	180
ttggaacgtg	tgcgtgcggg	gtcgttctg	ttgtgggtg	tggcggcgac	gtttgcattt	240
tttaccggtt	tttcagtcac	ttatcttcta	atggacaatc	agggctctgaa	tttctttttg	300
gttttggcgg	gcgtgttggg	catgaatacg	ctgatgctgg	cagtatgggt	ggcaatgttg	360
ttcctgcgtg	tgaagtg	gcgttttttc	agcagtcggg	cgacgtgggt	tcggggcaaa	420
gacctgtaa	atcagggcgt	gttgcggctg	tatgcggacg	agtggcggca	accttcggta	480
cgttggaata	taggcgcaac	gtcgcacagc	ctgtggctct	gcacgtgct	cggaatgctg	540
gtgtcggtat	tggtgctgct	tttgggtcgg	caatatacgt	tcaactggga	aagcacgctg	600
ttgagcaatg	ccgttcgggt	acgcgcgggt	gaaatgttgg	catggctgcc	gtcgaaactc	660
ggtttccctg	tccccgatgc	gcgggcgggc	atcgaggcc	gtctgaacgg	caatattgcc	720
gatgcgcggg	cttggtcggg	gctgctgggc	ggcagtatcg	cctgctacgg	catcctgccg	780

cgctgctgg	cttgggtagt	gtgtaaaatc	cttttgaaaa	caagcgaaaa	cggattggat	840
ttgaaaagc	cctattatca	ggcggtcac	cgccgctggc	agaacaaaat	caccgatgcg	900
gatacgctc	gggaaaccgt	gtccgcggtt	tcaccgaaaa	tcattcttgaa	cgatgcgccg	960
aaatgggcgg	tcattgtgga	gaccgagtg	caggacggcg	aatgggtcga	gggcaggctg	1020
gcgcaggaat	ggctggataa	ggcggttgcc	accaatcggg	aacagggtgc	cgcgctggag	1080
acagagctga	agcagaaacc	ggcgcaactg	cttatcggcg	tgcgcgcccc	aactgtgccg	1140
gaccgcggcg	tggtgcggca	gattgtccga	ctctcggaag	cggcgaggcg	cggcgcggtg	1200
gtgcagcttt	tggcggaaca	ggggctttca	gacgaccttt	cggaaaagct	ggaacattgg	1260
cgtaacgcgc	tggccgaatg	cggcgcgggc	tggcttgagc	ctgacagggc	ggcgaggaa	1320
gggcgtttga	aagaccaata	a				1341

<210> 200
 <211> 446
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 200
 Met Leu Asn Pro Ser Arg Lys Leu Val Glu Leu Val Arg Ile Leu Asp
 1 5 10 15
 Glu Gly Gly Phe Ile Phe Ser Gly Asp Pro Val Gln Ala Thr Glu Ala
 20 25 30
 Leu Arg Arg Val Asp Gly Ser Thr Glu Glu Lys Ile Ile Arg Arg Ala
 35 40 45
 Glu Met Ile Asp Arg Asn Arg Met Leu Arg Glu Thr Leu Glu Arg Val
 50 55 60
 Arg Ala Gly Ser Phe Trp Leu Trp Val Val Ala Ala Thr Phe Ala Phe
 65 70 75 80
 Phe Thr Gly Phe Ser Val Thr Tyr Leu Leu Met Asp Asn Gln Gly Leu
 85 90 95
 Asn Phe Phe Leu Val Leu Ala Gly Val Leu Gly Met Asn Thr Leu Met
 100 105 110
 Leu Ala Val Trp Leu Ala Met Leu Phe Leu Arg Val Lys Val Gly Arg
 115 120 125
 Phe Phe Ser Ser Pro Ala Thr Trp Phe Arg Gly Lys Asp Pro Val Asn
 130 135 140

Gln	Ala	Val	Leu	Arg	Leu	Tyr	Ala	Asp	Glu	Trp	Arg	Gln	Pro	Ser	Val	
145					150					155					160	
Arg	Trp	Lys	Ile	Gly	Ala	Thr	Ser	His	Ser	Leu	Trp	Leu	Cys	Thr	Leu	
			165						170					175		
Leu	Gly	Met	Leu	Val	Ser	Val	Leu	Leu	Leu	Leu	Leu	Val	Arg	Gln	Tyr	
		180						185					190			
Thr	Phe	Asn	Trp	Glu	Ser	Thr	Leu	Leu	Ser	Asn	Ala	Ala	Ser	Val	Arg	
		195					200					205				
Ala	Val	Glu	Met	Leu	Ala	Trp	Leu	Pro	Ser	Lys	Leu	Gly	Phe	Pro	Val	
	210					215					220					
Pro	Asp	Ala	Arg	Ala	Val	Ile	Glu	Gly	Arg	Leu	Asn	Gly	Asn	Ile	Ala	
225				230						235					240	
Asp	Ala	Arg	Ala	Trp	Ser	Gly	Leu	Leu	Val	Gly	Ser	Ile	Ala	Cys	Tyr	
			245						250					255		
Gly	Ile	Leu	Pro	Arg	Leu	Leu	Ala	Trp	Val	Val	Cys	Lys	Ile	Leu	Leu	
		260						265					270			
Lys	Thr	Ser	Glu	Asn	Gly	Leu	Asp	Leu	Glu	Lys	Pro	Tyr	Tyr	Gln	Ala	
		275					280					285				
Val	Ile	Arg	Arg	Trp	Gln	Asn	Lys	Ile	Thr	Asp	Ala	Asp	Thr	Arg	Arg	
	290					295					300					
Glu	Thr	Val	Ser	Ala	Val	Ser	Pro	Lys	Ile	Ile	Leu	Asn	Asp	Ala	Pro	
305				310						315					320	
Lys	Trp	Ala	Val	Met	Leu	Glu	Thr	Glu	Trp	Gln	Asp	Gly	Glu	Trp	Phe	
			325						330					335		
Glu	Gly	Arg	Leu	Ala	Gln	Glu	Trp	Leu	Asp	Lys	Gly	Val	Ala	Thr	Asn	
		340						345					350			
Arg	Glu	Gln	Val	Ala	Ala	Leu	Glu	Thr	Glu	Leu	Lys	Gln	Lys	Pro	Ala	
	355						360					365				
Gln	Leu	Leu	Ile	Gly	Val	Arg	Ala	Gln	Thr	Val	Pro	Asp	Arg	Gly	Val	
	370					375					380					
Leu	Arg	Gln	Ile	Val	Arg	Leu	Ser	Glu	Ala	Ala	Gln	Gly	Gly	Ala	Val	
385				390					395						400	
Val	Gln	Leu	Leu	Ala	Glu	Gln	Gly	Leu	Ser	Asp	Asp	Leu	Ser	Glu	Lys	
			405					410						415		
Leu	Glu	His	Trp	Arg	Asn	Ala	Leu	Ala	Glu	Cys	Gly	Ala	Ala	Trp	Leu	
		420					425						430			

Glu Pro Asp Arg Ala Ala Gln Glu Gly Arg Leu Lys Asp Gln
435 440 445

<210> 201
<211> 1350
<212> DNA
<213> Neisseria meningitidis

<220>
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<222> (241)..(241)
<223> N= Unknown

<220>

<221> misc_feature
<222> (248)..(248)
<223> N= Unknown

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<222> (316)..(316)
<223> N= Unknown

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<222> (470)..(470)
<223> N= Unknown

<220>
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<222> (814)..(814)
<223> N= Unknown

<220>
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<222> (817)..(817)
<223> N= Unknown

<220>
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<222> (851)..(851)
<223> N= Unknown

<220>
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<222> (853)..(857)
<223> N= Unknown

<220>
<221> misc_feature
<222> (860)..(862)
<223> N= Unknown

<220>
<221> misc_feature

<222> (865)..(865)

<223> N= Unknown

<220>

<221> misc_feature

<222> (1206)..(1206)

<223> N= Unknown

<400> 201

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attttcagcg	gcatcccg	gcaggcgacg	gaggctttgc	gccgcgtgga	cggcag	tacg	120
gaggaaaaa	tcatccg	tcg	ggcgaagatg	atcgacagga	accgtatg	c	180
ttggaacgtg	tgcgtgcggg	gtcgtttctg	ttgtgggtg	cggcggcgac	gtttgcgt	ttt	240
nttaccgntt	tttcagttac	ttatcttcta	atggacaatc	agggtctgaa	tttctttttg		300
gttttggcgg	gcgtgntggg	catgaatacg	ctgatgctgg	cagtatggtt	ggcaatg	ttg	360

ttcctgcgcg	tgaaagtggg	gcgttttttc	agcagtc	ccgg	cgacgtgg	tt	tcggggcaaa	420
gacctgtca	atcaggcggt	gttgcggctg	tatgcggacg	agtggcggn	accttcg	gta		480
cgttggaaaa	taggcgaac	gtcgcacagc	ctgtggctct	gcacgctg	c	ggaatgctg		540
gtgtcggtat	tgttgctgct	tttggcg	caatatacgt	tcaactggga	aagcacg	ctg		600
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ggttttcccg	tgccgatgc	gcgggcgg	tc	atcgaagg	tc	gtctgaac	gg	720
gatgcgcggg	cttggtcggg	gctgctgg	tc	ggcagtat	c	cctgctac	gg	780
cgccctcttg	cttgggcgg	atgcaaaatc	cttntgnaaa	caagcgaaaa	cggctt	ggat		840
ttggaaaagc	ncnnnnntcn	nncgntcatc	cgcgcgtggc	agaacaaaat	caccgat	gcg		900
gatacgcgtc	gggaaaccgt	gtccgcggtt	tcgcgcgaaa	tcgtcttgaa	c	gatgcgc	cg	960
aaatgggcgg	tcatgctgga	gaccgaatgg	caggacggcg	aatgggttcga	gggcagg	ctg		1020
gcgcaggaat	ggctggataa	gggcgttgcc	gccaatcggg	aacagggttgc	cgcgctg	gag		1080
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gaccgcggcg	tgttgcgga	gatcgtccga	ctttcgggaag	cggcgagggg	cggcgcg	gtg		1200
gtgcancttt	tggcggaaca	ggggctttca	gacgaccttt	cggaaaagct	ggaacatt	gg		1260
cgtaacgcgc	tgaccgaatg	cggcgcgggc	tggctggaac	ccgacagagc	ggcgagga			1320
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<213> Neisseria meningitidis

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<223> Xaa= any amino acid

<400> 202

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 20 25 30

Leu Arg Arg Val Asp Gly Ser Thr Glu Glu Lys Ile Ile Arg Arg Ala
 35 40 45

Lys Met Ile Asp Arg Asn Arg Met Leu Arg Glu Thr Leu Glu Arg Val
 50 55 60

Arg Ala Gly Ser Phe Trp Leu Trp Val Ala Ala Ala Thr Phe Ala Phe
 65 70 75 80

Xaa Thr Xaa Phe Ser Val Thr Tyr Leu Leu Met Asp Asn Gln Gly Leu
 85 90 95

Asn Phe Phe Leu Val Leu Ala Gly Val Xaa Gly Met Asn Thr Leu Met
 100 105 110

Leu Ala Val Trp Leu Ala Met Leu Phe Leu Arg Val Lys Val Gly Arg
 115 120 125

Phe Phe Ser Ser Pro Ala Thr Trp Phe Arg Gly Lys Asp Pro Val Asn
 130 135 140

Gln Ala Val Leu Arg Leu Tyr Ala Asp Glu Trp Arg Xaa Pro Ser Val
 145 150 155 160

Arg Trp Lys Ile Gly Ala Thr Ser His Ser Leu Trp Leu Cys Thr Leu
 165 170 175

Leu Gly Met Leu Val Ser Val Leu Leu Leu Leu Val Arg Gln Tyr
 180 185 190

Thr Phe Asn Trp Glu Ser Thr Leu Leu Gly Asp Ser Ser Ser Val Arg
 195 200 205
 Leu Val Glu Met Leu Ala Trp Leu Pro Ala Lys Leu Gly Phe Pro Val
 210 215 220
 Pro Asp Ala Arg Ala Val Ile Glu Gly Arg Leu Asn Gly Asn Ile Ala
 225 230 235 240
 Asp Ala Arg Ala Trp Ser Gly Leu Leu Val Gly Ser Ile Ala Cys Tyr
 245 250 255
 Gly Ile Leu Pro Arg Leu Leu Ala Trp Ala Val Cys Lys Ile Leu Xaa
 260 265 270
 Xaa Thr Ser Glu Asn Gly Leu Asp Leu Glu Lys Xaa Xaa Xaa Xaa Xaa
 275 280 285
 Xaa Ile Arg Arg Trp Gln Asn Lys Ile Thr Asp Ala Asp Thr Arg Arg
 290 295 300
 Glu Thr Val Ser Ala Val Ser Pro Lys Ile Val Leu Asn Asp Ala Pro
 305 310 315 320
 Lys Trp Ala Val Met Leu Glu Thr Glu Trp Gln Asp Gly Glu Trp Phe
 325 330 335
 Glu Gly Arg Leu Ala Gln Glu Trp Leu Asp Lys Gly Val Ala Ala Asn
 340 345 350
 Arg Glu Gln Val Ala Ala Leu Glu Thr Glu Leu Lys Gln Lys Pro Ala
 355 360 365
 Gln Leu Leu Ile Gly Val Arg Ala Gln Thr Val Pro Asp Arg Gly Val
 370 375 380
 Leu Arg Gln Ile Val Arg Leu Ser Glu Ala Ala Gln Gly Gly Ala Val
 385 390 395 400
 Val Xaa Leu Leu Ala Glu Gln Gly Leu Ser Asp Asp Leu Ser Glu Lys
 405 410 415
 Leu Glu His Trp Arg Asn Ala Leu Thr Glu Cys Gly Ala Ala Trp Leu
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 Glu Pro Asp Arg Ala Ala Gln Glu Gly Arg Leu Lys Thr Asn Asp Arg
 435 440 445

Thr

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<213> Neisseria gonorrhoeae

<400> 204

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20

25

30

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35 40 45

Phe Phe Leu Val Leu Ala Gly Val Leu Gly Met Asn Thr Leu Met Leu
50 55 60

Ala Val Trp Leu Ala Thr Leu Phe Leu Arg Val Lys Val Gly Arg Phe
65 70 75 80

Phe Ser Ser Pro Ala Thr Trp Phe Arg Gly Lys Gly Pro Val Asn Gln
85 90 95

Ala Val Leu Arg Leu Tyr Ala Asp Gln Trp Arg Gln Pro Ser Val Arg
100 105 110

Trp Lys Ile Gly Ala Thr Ala His Ser Leu Trp Leu Cys Thr Leu Leu
115 120 125

Gly Met Leu Val Ser Val Leu Leu Leu Leu Val Arg Gln Tyr Thr
130 135 140

Phe Asn Trp Glu Ser Thr Leu Leu Ser Asn Ala Ala Ser Val Arg Ala
145 150 155 160

Val Glu Met Leu Ala Trp Leu Pro Ser Lys Leu Gly Phe Pro Val Pro
165 170 175

Asp Ala Arg Ala Val Ile Glu Gly Arg Leu Asn Gly Asn Ile Ala Asp
180 185 190

Ala Arg Ala Trp Ser Gly Leu Leu Val Gly Ser Ile Val Cys Tyr Gly
195 200 205

Ile Leu Pro Arg Leu Leu Ala Trp Val Val Cys Lys Ile Leu Leu Lys
210 215 220

Thr Ser Glu Asn Gly Leu Asp Leu Glu Lys Thr Tyr Tyr Gln Ala Val
225 230 235 240

Ile Arg Arg Trp Gln Asn Lys Ile Thr Asp Ala Asp Thr Arg Arg Glu
245 250 255

Thr Val Ser Ala Val Ser Pro Lys Ile Val Leu Asn Asp Ala Pro Lys
260 265 270

Trp Ala Leu Met Leu Glu Thr Glu Trp Gln Asp Gly Gln Trp Phe Glu
275 280 285

Gly Arg Leu Ala Gln Glu Trp Leu Asp Lys Gly Val Ala Ala Asn Arg
290 295 300

Glu Gln Val Ala Ala Leu Glu Thr Glu Leu Lys Gln Lys Pro Ala Gln
305 310 315 320

Leu Leu Ile Gly Val Arg Ala Gln Thr Val Pro Asp Arg Gly Val Leu
325 330 335

Arg Gln Ile Val Arg Leu Ser Glu Ala Ala Gln Gly Gly Ala Val Val
340 345 350

Gln Leu Leu Ala Glu Gln Gly Leu Ser Asp Asp Leu Ser Glu Lys Leu
355 360 365

Glu His Trp Arg Asn Ala Leu Thr Glu Cys Gly Ala Ala Trp Leu Glu
370 375 380

Pro Asp Arg Val Ala Gln Glu Gly Arg Leu Lys Asp Gln
385 390 395

<210> 205

<211> 1341

<212> DNA

<213> Neisseria gonorrhoeae

<400> 205

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gaggaaaaaa	tcttccgctg	ggcggagatg	atcgacaggg	accgtatgtt	gcgggacacg	180
ttggaacgtg	tgcgtgcggg	gtcgttcttg	ttatgggtgg	tgggtggcatc	gatgatgttt	240
accgccggat	tttcaggcac	ttatcttctg	atggacaatc	aggggctgaa	tttcttttta	300
gttttgccgg	gagtgttggg	catgaatacg	ctgatgctgg	cagtatgggt	ggcaacgttg	360
ttcctgcgcg	tgaaagtggg	acggtttttc	agcagtccgg	cgacgtgggt	tcggggcaaaa	420
ggccctgtaa	atcaggcggt	gttgccgctg	tatgcggacc	agtggcggca	accttcggta	480
cgatggaaaa	taggcgcaac	ggcgcacagc	ttgtggctct	gcacgctgct	cggaatgctg	540
gtgtcggtat	tgctgctgct	tttgggtcgg	caatatacgt	tcaactggga	aagcacgctg	600
ttgagcaatg	ccgcttcggg	acgcgcgggtg	gaaatgttgg	catggctgcc	gtcgaaaactc	660
ggtttccctg	tccccgatgc	gcgggcgggtc	atcgaaggtc	gtctgaacgg	caatattgcc	720
gatgcgcggg	cttggtcggg	gctgctgggtc	ggcagtatcg	tctgctacgg	catcctgccg	780
cgctctttgg	cttgggtagt	gtgtaaaatc	cttttgaaaa	caagcgaaaa	cggattggat	840
ttggaaaaaa	cctattatca	ggcgggtcatc	cgccgctggc	agaacaaaaat	caccgatgcg	900

gatacgcgctc	gggaaaccgt	gtccgcggtt	tcgccgaaaa	tcgtcttgaa	cgatgcgcgcg	960
aaatgggagc	tcattgctgga	gaccgagtg	caggacggcc	aatgggttcga	gggcaggctg	1020
gcgcaggaat	ggctggataa	gggcgttgcc	gccaatcggg	aacaggttgc	cgcgctggag	1080
acagagctga	agcagaaacc	ggcgcaactg	cttatcggcg	tacgcgcccc	aactgtgccg	1140
gaccggggcg	tgctgcggca	gattgtgcgg	ctttcggaag	cggcgagggg	cggcgcggtg	1200
gtgcagcttt	tggcggaaca	ggggctttca	gacgaccttt	cggaaaagct	ggaacattgg	1260
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 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 206

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			20					25						30		
Leu	Arg	Arg	Val	Asp	Gly	Ser	Thr	Glu	Glu	Lys	Ile	Phe	Arg	Arg	Ala	
			35				40						45			
Glu	Met	Ile	Asp	Arg	Asp	Arg	Met	Leu	Arg	Asp	Thr	Leu	Glu	Arg	Val	
	50					55					60					
Arg	Ala	Gly	Ser	Phe	Trp	Leu	Trp	Val	Val	Val	Ala	Ser	Met	Met	Phe	
65					70					75					80	
Thr	Ala	Gly	Phe	Ser	Gly	Thr	Tyr	Leu	Leu	Met	Asp	Asn	Gln	Gly	Leu	
				85					90					95		
Asn	Phe	Phe	Leu	Val	Leu	Ala	Gly	Val	Leu	Gly	Met	Asn	Thr	Leu	Met	
			100					105					110			
Leu	Ala	Val	Trp	Leu	Ala	Thr	Leu	Phe	Leu	Arg	Val	Lys	Val	Gly	Arg	
		115					120						125			
Phe	Phe	Ser	Ser	Pro	Ala	Thr	Trp	Phe	Arg	Gly	Lys	Gly	Pro	Val	Asn	
	130					135					140					
Gln	Ala	Val	Leu	Arg	Leu	Tyr	Ala	Asp	Gln	Trp	Arg	Gln	Pro	Ser	Val	
145					150					155					160	
Arg	Trp	Lys	Ile	Gly	Ala	Thr	Ala	His	Ser	Leu	Trp	Leu	Cys	Thr	Leu	
				165					170					175		
Leu	Gly	Met	Leu	Val	Ser	Val	Leu	Leu	Leu	Leu	Val	Arg	Gln	Tyr		
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		195					200					205				
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	210					215						220				

Pro Asp Ala Arg Ala Val Ile Glu Gly Arg Leu Asn Gly Asn Ile Ala
225 230 235 240

Asp Ala Arg Ala Trp Ser Gly Leu Leu Val Gly Ser Ile Val Cys Tyr
245 250 255

Gly Ile Leu Pro Arg Leu Leu Ala Trp Val Val Cys Lys Ile Leu Leu
260 265 270

Lys Thr Ser Glu Asn Gly Leu Asp Leu Glu Lys Thr Tyr Tyr Gln Ala
275 280 285

Val Ile Arg Arg Trp Gln Asn Lys Ile Thr Asp Ala Asp Thr Arg Arg
290 295 300

Glu Thr Val Ser Ala Val Ser Pro Lys Ile Val Leu Asn Asp Ala Pro
305 310 315 320

Lys Trp Ala Leu Met Leu Glu Thr Glu Trp Gln Asp Gly Gln Trp Phe
325 330 335

Glu Gly Arg Leu Ala Gln Glu Trp Leu Asp Lys Gly Val Ala Ala Asn
340 345 350

Arg Glu Gln Val Ala Ala Leu Glu Thr Glu Leu Lys Gln Lys Pro Ala
355 360 365

Gln Leu Leu Ile Gly Val Arg Ala Gln Thr Val Pro Asp Arg Gly Val
370 375 380

Leu Arg Gln Ile Val Arg Leu Ser Glu Ala Ala Gln Gly Gly Ala Val
385 390 395 400

Val Gln Leu Leu Ala Glu Gln Gly Leu Ser Asp Asp Leu Ser Glu Lys
405 410 415

Leu Glu His Trp Arg Asn Ala Leu Thr Glu Cys Gly Ala Ala Trp Leu
420 425 430

Glu Pro Asp Arg Val Ala Gln Glu Gly Arg Leu Lys Asp Gln
435 440 445

<210> 207

<211> 450

<212> DNA

<213> Neisseria meningitidis

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ttcgggggttc	gggacggggg	acgtttgtgg	gcagtacggg	ggtttctttg	agtgtgtttt	180
cagcttgtgt	tccggcgtcg	tccggctgcc	tgctcggtttg	agctgtgtcg	gcaggttgcg	240
gtttgacctg	gtttttcttg	ggtgcggcag	gggacgtcat	tctcctgccg	ctttcgtctg	300
tgccgtccgg	ctgtgcgggt	tcggatgagg	cggcgtgggt	gtgttcgggt	tgggcggcat	360
cttgttccga	ctacgccgtt	tggcagccag	aattcggttt	cgcgggggct	gtcgggtgtg	420

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<213> Neisseria meningitidis

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Cys Ala Cys Phe Ser Gly Val Ser Phe Arg Gly Ser Gly Arg Gly Thr
35 40 45
Phe Val Gly Ser Thr Gly Val Ser Leu Ser Val Phe Ser Ala Cys Val
50 55 60
Xaa Gly Val Val Arg Leu Pro Val Gly Leu Ser Cys Val Gly Arg Leu
65 70 75 80
Xaa Xaa Leu Thr Arg Phe Phe Leu Gly Ala Ala Gly Asp Val Ile Leu
85 90 95
Leu Pro Leu Ser Ser Val Pro Ser Gly Cys Ala Gly Ser Asp Glu Ala
100 105 110
Ala Trp Trp Cys Ser Gly Trp Ala Ala Ser Cys Pro Thr Thr Pro Phe
115 120 125
Gly Ser Gln Asn Ser Val Ser Arg Gly Leu Ser Val Cys Cys Gly Ser
130 135 140
Ala Arg Val Leu Ser Ser
145 150

<210> 209
<211> 1362

<212> DNA

<213> *Neisseria meningitidis*

<400> 209

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ttggtatggt tttctttggg cgtttctttg ggctgcgcct gtttttcggg tgtttctttt    180
cgggggttcgg gacggggggac gtttgtgggc agtacggggg tttctttgag tgtgttttca    240
gcttgtgttc cggcgctcgtc cggctgcctg tcggtttgag ctgtgtcggc aggttgccggt    300
ttgacctcgg ttttcttggg tgcggcaggg gacggcagtc cgctgccgct ttcgtctgtg    360
ccgtccggct gtgcggggttc ggatgaggcg gcgtggtggt gttcggggtt ggccggcatct    420
tgtccgacta cgccgtttgg cagccagaat tcggtttcgc gggggctgtc ggtgtgttgc    480
ggttcggctt gaagggtttt gtcgccgttc gggttgaatg tgctgacgat gcctattgcc    540
aatgcgccga tggcggcgat acagatgagc aatacggcgc gtatcaggag tttgggggtc    600
agcctgaagg gtttgttcgg tttttttgcc attttgattg tgcttttggg gtgtcgggca    660
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gagggtgatg actttttgta cgccgacggg ggtgctgact ttttgggtaa tctgcgcctg    780
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gcgcgcctgt gtggcggggc tgatgcccac cagcgtggcg cggacttttg atgtgttcca    900
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cacgccttcg gcggcctggt cggaaactgc aatctgaccg acgaactgtt tttcgccctc   1020
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cgtgtagcct ttggtttggt tgttttggcg cagataggaa cgggcgggtg tttcgatacg   1140
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aatggcggca atcagggtgc ggacgggtgt cggtttgggg ttcacggggt gcttcctttc   1320
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<212> PRT

<213> *Neisseria meningitidis*

<400> 210

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20           25           30

Gly Val Phe Phe Gly Val Ser Gly Leu Val Trp Phe Ser Leu Gly Val
35           40           45

Ser Leu Gly Cys Ala Cys Phe Ser Gly Val Ser Phe Arg Gly Ser Gly
50           55           60

Arg Gly Thr Phe Val Gly Ser Thr Gly Val Ser Leu Ser Val Phe Ser
65           70           75           80

Ala Cys Val Pro Ala Ser Ser Gly Cys Leu Ser Val Ala Val Ser Ala
85           90           95

Gly Cys Gly Leu Thr Arg Phe Phe Leu Gly Ala Ala Gly Asp Gly Ser
100          105          110
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Pro Leu Pro Leu Ser Ser Val Pro Ser Gly Cys Ala Gly Ser Asp Glu
 115 120 125
 Ala Ala Trp Trp Cys Ser Gly Trp Ala Ala Ser Cys Pro Thr Thr Pro
 130 135 140
 Phe Gly Ser Gln Asn Ser Val Ser Arg Gly Leu Ser Val Cys Cys Gly
 145 150 155 160
 Ser Ala Arg Val Leu Ser Pro Phe Gly Leu Asn Val Leu Thr Met Pro
 165 170 175
 Ile Ala Asn Ala Pro Met Ala Ala Ile Gln Met Ser Asn Thr Ala Arg
 180 185 190
 Ile Arg Ser Leu Gly Val Ser Leu Lys Gly Leu Phe Gly Phe Phe Ala
 195 200 205
 Ile Leu Ile Val Leu Leu Gly Cys Arg Ala Met Pro Ser Glu Gly Gly
 210 215 220
 Ser Asp Gly Ile Ala Glu Ser Ala Leu Asp Val Val Leu Val Glu Gly
 225 230 235 240
 Asp Asp Phe Leu Tyr Ala Asp Gly Gly Ala Asp Phe Leu Gly Asn Leu
 245 250 255
 Arg Leu Phe Phe Gly Gly Glu Asp Ala His Asn Val Gly Tyr Val Ala
 260 265 270
 Val Gly Asn Asp Phe Asp Ala Arg Leu Cys Gly Gly Ala Asp Ala Gln
 275 280 285
 Gln Arg Gly Ala Asp Phe Gly Cys Val Pro Ser Val Ala Gly Asp Val
 290 295 300
 Ala Gly Ser Ala Arg Gln Gly Gly Asp Gly Asn Ile Val Val His Ala
 305 310 315 320
 Phe Gly Gly Leu Phe Gly Thr Cys Asn Leu Thr Asp Glu Leu Phe Phe
 325 330 335
 Ala Phe Gly Gly Asp Leu Ser Glu Gln Gln Gln Val Ala Val Val Ala
 340 345 350
 Asp Asp Gly Asp Leu Gly Arg Val Ala Phe Gly Leu Val Val Leu Ala
 355 360 365
 Gln Ile Gly Thr Gly Gly Gly Phe Asp Thr Gln Arg His Asn Val Val
 370 375 380
 Val Gly Leu Arg Ala Gly Gly Ser Ala Val Asp Gly Gly Phe Arg Ala
 385 390 395 400
 Asp Gly Gly Ala Ser Asp Tyr Cys Ala Asp Ala Ala Ala Lys Gly Lys

	405		410		415										
Ala	Glu	Asn	Gly	Gly	Asn	Gln	Gly	Ala	Asp	Gly	Val	Arg	Phe	Gly	Phe
			420				425						430		
His	Arg	Val	Leu	Pro	Phe	Leu	Gly	Val	Ser	Asp	Gly	Ile	Ala	Leu	Arg
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gccgagggca aggctgagga cggcggcagt cagggtgcgg acggtgtgcg gtttggggtt 1320
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<213> Neisseria meningitidis

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 35 40 45

 Ser Xaa Ser Leu Gly Val Ser Xaa Gly Cys Ala Cys Phe Ser Gly Val
 50 55 60

 Ser Phe Arg Gly Ser Gly Arg Gly Thr Phe Val Gly Ser Thr Gly Val
 65 70 75 80

 Ser Leu Ser Val Phe Ser Ala Cys Ala Pro Ala Ser Ser Gly Cys Leu
 85 90 95

 Ser Val Xaa Ala Val Ser Ala Gly Cys Gly Leu Thr Arg Xaa Phe Xaa
 100 105 110

 Gly Ala Ala Gly Asp Gly Ser Pro Leu Pro Leu Ser Ser Val Pro Ser
 115 120 125

 Gly Cys Ala Gly Ala Asp Glu Glu Ala Xaa Xaa Cys Ser Gly Trp Ala
 130 135 140

 Ala Ser Cys Pro Thr Thr Pro Phe Gly Ser Gln Asn Ser Val Ser Arg
 145 150 155 160

 Gly Leu Ser Val Cys Cys Gly Ser Val Trp Arg Val Leu Ser Pro Phe
 165 170 175

 Gly Xaa Asn Val Leu Thr Met Pro Ile Ala Asn Ala Pro Met Ala Val
 180 185 190

 Ile Gln Met Ser Asn Thr Ala Arg Ile Arg Ser Leu Gly Val Ser Leu
 195 200 205

 Lys Gly Leu Phe Xaa Phe Phe Ala Ile Leu Ile Val Leu Leu Gly Cys
 210 215 220

 Arg Ala Met Pro Ser Glu Gly Gly Ser Asp Gly Ile Ala Glu Ser Ala
 225 230 235 240

 Leu Asp Val Val Xaa Val Glu Gly Asp Asp Phe Leu Tyr Ala Asp Gly
 245 250 255

 Gly Ala Asp Phe Leu Gly Asn Leu Arg Leu Phe Phe Gly Gly Glu Asp
 260 265 270

Ala His Asn Val Gly Tyr Val Ala Val Gly Asn Asp Phe Asp Ala Arg
275 280 285

Leu Cys Gly Gly Ala Asp Ala Gln Gln Arg Gly Ala Asp Phe Gly Cys
290 295 300

Val Pro Ser Val Ala Gly Asp Val Ala Gly Ser Ala Arg Gln Gly Gly
305 310 315 320

Asp Gly Asn Val Xaa Val His Ala Phe Gly Gly Leu Phe Gly Thr Cys
325 330 335

Asn Leu Thr Asp Glu Leu Phe Leu Ala Phe Gly Gly Asp Leu Ser Glu
340 345 350

Gln Gln Gln Val Ala Val Val Ala Asp Asn Gly Asp Leu Gly Arg Val
355 360 365

Xaa Phe Gly Leu Val Val Leu Ala Gln Ile Gly Ala Gly Gly Gly Phe
370 375 380

Asp Thr Gln Arg His Tyr Val Val Val Gly Xaa Arg Ala Gly Gly Ser
385 390 395 400

Ala Val Asp Gly Gly Phe Arg Ala Asp Arg Arg Ala Ala Asp Asp Cys
405 410 415

Ala Asp Ala Ala Ala Glu Gly Lys Ala Glu Asp Gly Gly Ser Gln Gly
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Ala Asp Gly Val Arg Phe Gly Phe His Arg Val Leu Pro Phe Leu Gly
435 440 445

Val Ser Asp Gly Ile Ala Leu Arg His Ala Val
450 455

<210> 213
<211> 1380
<212> DNA
<213> Neisseria gonorrhoeae

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ttggtatggt tttctttggg cgtttctttt tctttgggtg tttctttggg ctgcgcctgt 180
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gcatccgaag ggcgcgggtt gacccgggtt ttcttgggtg cggcagggga cggcagtcgg 360
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cttttggggg gtcggggcaat gccgtctgaa ggcgggttcag acggcattgc cgagtcagcg 720
ttggacgtag ttttggtaga gggtaatgac tttttgtacg ccgacgggtg tgctgacttt 780

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gactttggac	gtgttccaag	tgtcgccggc	gatgtcgccc	gcagtgcgcg	gcagggagggc	960
gacggtaatg	tagttgtata	cgccttcggc	ggcctgttcg	gaacgtgcaa	tctgaccgac	1020
gaactgtttt	tgccttcggc	tggcgacttg	tccgagcagc	agcaggtggc	ggttgtagcc	1080
gacgacggag	atctggggcg	tgtagccttt	ggtttggttg	ttttggcgca	ggttaggaacg	1140
ggcgggtggt	tgcatacgca	acgccataac	gttgtcatcg	gtttgcgcgc	cggtgggttcg	1200
gcggtcgatg	acggattttg	cgcgcacggc	ggccccgcgc	acgactgcgc	tgaagcagcc	1260
gccgagggca	aggctgagga	cggcggcaat	cagggtgcgc	acggtgtgtg	gtttgggttt	1320
catcggggac	ttcctttctt	gggcgtttca	gacggcattg	ctttgcgcga	tgccgtctga	1380

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 35 40 45
 Ser Phe Ser Leu Gly Val Ser Leu Gly Cys Ala Cys Phe Ser Gly Val
 50 55 60
 Ser Phe Arg Gly Ser Gly Trp Gly Ala Phe Val Gly Ser Thr Gly Val
 65 70 75 80
 Ser Leu Ser Val Phe Ser Ala Cys Val Pro Val Pro Val Asn Glu Ser
 85 90 95
 Ala Ala Arg Ala Ala Ser Glu Gly Arg Gly Leu Thr Arg Phe Phe Leu
 100 105 110
 Gly Ala Ala Gly Asp Gly Ser Pro Leu Pro Leu Ser Ser Val Pro Ser
 115 120 125
 Gly Cys Ala Gly Ser Asp Glu Ala Ala Trp Trp Cys Ser Gly Trp Ala
 130 135 140
 Ala Ser Cys Pro Thr Ala Pro Phe Gly Ser Gln Asn Ser Val Ser Arg
 145 150 155 160
 Gly Leu Ser Val Cys Cys Gly Ser Val Trp Arg Val Leu Ser Pro Phe
 165 170 175
 Gly Leu Asn Val Leu Thr Met Pro Thr Ala Asn Ala Pro Met Ala Val
 180 185 190
 Ile Gln Met Ser Asn Thr Ala Arg Ile Arg Ser Leu Gly Val Ser Leu
 195 200 205

Lys Gly Leu Phe Gly Phe Phe Ala Ile Leu Ile Val Leu Leu Gly Cys
 210 215 220
 Arg Ala Met Pro Ser Glu Gly Gly Ser Asp Gly Ile Ala Glu Ser Ala
 225 230 235 240
 Leu Asp Val Val Leu Val Glu Gly Asn Asp Phe Leu Tyr Ala Asp Gly
 245 250 255
 Gly Ala Asp Phe Leu Gly Asn Leu Arg Leu Phe Phe Gly Gly Glu Asp
 260 265 270
 Ala His Asn Val Gly Tyr Ile Ala Val Gly Asn Asp Phe Asp Ala Arg
 275 280 285
 Leu Cys Ser Gly Ala Asp Ala Gln Gln Arg Gly Ala Asp Phe Gly Arg
 290 295 300
 Val Pro Ser Val Ala Gly Asp Val Ala Arg Ser Ala Arg Gln Gly Gly
 305 310 315 320
 Asp Gly Asn Val Val Val Tyr Ala Phe Gly Gly Leu Phe Gly Thr Cys
 325 330 335
 Asn Leu Thr Asp Glu Leu Phe Phe Ala Phe Gly Gly Asp Leu Ser Glu
 340 345 350
 Gln Gln Gln Val Ala Val Val Ala Asp Asp Gly Asp Leu Gly Arg Val
 355 360 365
 Ala Phe Gly Leu Val Val Leu Ala Gln Val Gly Thr Gly Gly Gly Phe
 370 375 380
 Asp Thr Gln Arg His Asn Val Val Ile Gly Leu Arg Ala Gly Gly Ser
 385 390 395 400
 Ala Val Asp Asp Gly Phe Cys Ala Asp Gly Gly Pro Ala Asp Asp Cys
 405 410 415
 Ala Glu Ala Ala Ala Glu Gly Lys Ala Glu Asp Gly Gly Asn Gln Gly
 420 425 430
 Ala Asp Gly Val Trp Phe Gly Phe His Arg Gly Leu Pro Phe Leu Gly
 435 440 445
 Val Ser Asp Gly Ile Ala Leu Arg His Ala Val
 450 455

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 <211> 279
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cgtaaaaaag	aaatcgtctt	cggcacgacc	gtcggcgact	tcggcgatat	ggtcaaagaa	180
caaatccaag	ccgagctgga	gaaaaaaggc	tacaccgtca	aactggtcga	gtttaccgac	240
tatgtacgcc	cgaatctggc	attggctgag	ggcgagttg			279

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 Ala Ala Ala Asp Asn Gly Ala Ala Lys Lys Glu Ile Val Phe Gly Thr
 35 40 45
 Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu Gln Ile Gln Ala Glu
 50 55 60
 Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp Tyr
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 Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu
 85 90

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ccgccgcga	caacggcgcg
120	
gcgaaaaaag	aaatcgtctt
cggcacgacc	gtcggcgact
tcggcgatat	ggtcaaagaa
180	
caaatccaag	ccgagctgga
gaaaaaaggc	tacaccgtca
aactggtcga	gtttaccgac
240	
tatgtacgcc	cgaatctggc
attggctgag	ggcgagttgg
acatcaacgt	cttccaacac
300	
aaaccctatc	ttgacgactt
caaaaaagaa	cacaatctgg
acatcaccga	agtcttccaa
360	
gtgccgaccg	cgcttttggg
actgtaccgg	ggcaagctga
aatcgctgga	agaagtcaaa
420	
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gcccacacac	ccgtccaact
tcgcccgcgt	cttggtgatg
480	
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caaactcaaa	gacggcatca
atccgttgac	cgcatccaaa
540	
gcggacatcg	ccgagaacct
gaaaaacatc	aaaatcgctg
agcttgaagc	cgcgcaactg
600	
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ggattttgcc	gtcgtcaacg
gcaactacgc	cataagcagc
660	
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cctgttccaa	gaaccgagct
ttgcctatgt	caactggtct
720	
gccgtcaaaa	ccgccgacaa
agacagccaa	tggtctaaag
acgtaaccga	ggcctataac
780	
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864	

<210> 218
 <211> 287
 <212> PRT
 <213> *Neisseria meningitidis*

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35 40 45

Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu Gln Ile Gln Ala
50 55 60

Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp
65 70 75 80

Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn
85 90 95

Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn
100 105 110

Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu
115 120 125

Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr
130 135 140

Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met
145 150 155 160

Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu
165 170 175

Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile
180 185 190

Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp
195 200 205

Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu
210 215 220

Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser
225 230 235 240

Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr
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 ggcatagaagc tgaccgaagc cctgttccaa gaaccgagct ttgcctatgt caactggtct 720
 gccgtcaaaa ccgccgacaa agacagccaa tggcttaaag acgtaaccga ggcctataac 780
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<213> Neisseria meningitidis

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20 25 30

Ser Ala Ala Ala Asp Asn Gly Ala Ala Xaa Lys Glu Ile Val Phe Gly
35 40 45

Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu Xaa Ile Gln Pro
50 55 60

Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Xaa Thr Asp
 65 70 75 80
 Tyr Val Arg Xaa Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn
 85 90 95
 Val Xaa Gln His Xaa Xaa Tyr Leu Asp Asp Xaa Lys Lys Xaa His Asn
 100 105 110
 Leu Asp Ile Thr Xaa Val Xaa Gln Val Pro Thr Ala Pro Leu Gly Leu
 115 120 125
 Tyr Pro Gly Lys Leu Lys Ser Leu Xaa Xaa Val Lys Xaa Gly Ser Thr
 130 135 140
 Val Ser Ala Pro Asn Asp Pro Xaa Xaa Phe Xaa Arg Val Leu Val Met
 145 150 155 160
 Leu Asp Glu Leu Gly Xaa Ile Lys Leu Lys Asp Xaa Ile Xaa Xaa Xaa
 165 170 175
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 180 185 190
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Ala Xaa Xaa Xaa
 195 200 205
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Ser Gly Met Lys Leu
 210 215 220
 Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser
 225 230 235 240
 Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr
 245 250 255
 Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe
 260 265 270
 Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
 275 280 285

<210> 221

<211> 864

<212> DNA

<213> *Neisseria meningitidis*

<400> 221

atgaaaacct	tcttcaaaac	cctttccgcc	gccgcactcg	cgctcatcct	cgccgcctgc	60
ggcgggtcaaa	aagatagcgc	gcccgcgcga	tccgcttctg	ccgccgccga	caacggcgcg	120
gcgaaaaaag	aaatcgtctt	cggcacgacc	gtcggcgact	tcggcgatat	ggtcaaagaa	180
caaatccaac	ccgagctgga	gaaaaaaggc	tacaccgtca	aactgggtcga	gtttaccgac	240
tatgtgcgcc	cgaatctggc	attggctgag	ggcgagttag	acatcaacgt	cttccaacac	300
aaaccctatc	ttgacgactt	caaaaaagaa	cacaatctgg	acatcaccga	agtccttccaa	360
gtgccgacgc	cgcctttggg	actgtaccgc	ggcaagctga	aatcgctgga	agaagtcaaa	420
gacggcagca	ccgtatccgc	gccaacgcac	ccgtccaact	tcgcccgcgt	cttggtgatg	480

ctcgacgaac	tggttggat	caaactcaaa	gacggcatca	atccgctgac	cgcattcāaaa	540
gcggacattg	ccgaaaacct	gaaaaacatc	aaaatcgctg	agcttgaagc	cgcgcaactg	600
ccgcgtagcc	gcgcccagct	ggattttgcc	gtcgtcaacg	gcaactacgc	cataagcagc	660
ggcatgaagc	tgaccgaagc	cctgtttccaa	gaaccgagct	ttgcctatgt	caactggtct	720
gccgtcaaaa	ccgccgacaa	agacagccaa	tggtttaaag	acgtaaccga	ggcctataac	780
tccgacgcgt	tcaaagccta	cgcgacacaaa	cgcttcgagg	gctacaaatc	ccctgccgca	840
tggaatgaag	gcgcagccaa	ataa				864

<210> 222
 <211> 287
 <212> PRT
 <213> Neisseria meningitidis

<400> 222
 Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile
 1 5 10 15
 Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala
 20 25 30
 Ser Ala Ala Ala Asp Asn Gly Ala Ala Lys Lys Glu Ile Val Phe Gly
 35 40 45
 Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu Gln Ile Gln Pro
 50 55 60
 Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp
 65 70 75 80
 Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn
 85 90 95
 Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn
 100 105 110
 Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu
 115 120 125
 Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr
 130 135 140
 Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met
 145 150 155 160
 Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu
 165 170 175
 Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile
 180 185 190
 Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp
 195 200 205
 Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu
 210 215 220

Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser
 225 230 235 240

Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr
 245 250 255

Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe
 260 265 270

Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
 275 280 285

<210> 223
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 223
 nnnnnnnn

8

<210> 224
 <211> 288
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 224
 Met Lys Thr Phe Phe Lys Thr Leu Ser Thr Ala Ser Leu Ala Leu Ile
 1 5 10 15

Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala
 20 25 30

Ala Ala Pro Ser Ala Asp Asn Gly Ala Ala Lys Lys Glu Ile Val Phe
 35 40 45

Gly Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu Gln Ile Gln
 50 55 60

Ala Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr
 65 70 75 80

Asp Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile
 85 90 95

Asn Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His
 100 105 110

Asn Leu Asp Ile Thr Glu Ala Phe Gln Val Pro Thr Ala Pro Leu Gly
 115 120 125

Leu Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser
 130 135 140
 Thr Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Ala Leu Val
 145 150 155 160
 Met Leu Asn Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro
 165 170 175
 Leu Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys
 180 185 190
 Ile Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val
 195 200 205
 Asp Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys
 210 215 220
 Leu Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp
 225 230 235 240
 Ser Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val
 245 250 255
 Thr Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg
 260 265 270
 Phe Glu Gly Tyr Lys Tyr Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
 275 280 285

<210> 225
 <211> 867
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 225
 atgaaaacct tcttcaaaac cctttccgcc gccgcactcg cgctcatcct cgcagcctgc 60
 ggcggtcaaaa aagacagcgc gcccgagcc tctgccgccg ccccttctgc cgataacggc 120
 gcggcgaaaaa aagaaatcgt cttcggcacg accgtgggcg acttcggcga tatggtcaaa 180
 gaacaaatcc aagccgagct ggagaaaaaa ggctacaccg tcaaattggt cgaatttacc 240
 gactatgtgc gcccgaaatc ggcattggcg gagggcgagt tggacatcaa cgtcttccaa 300
 cacaaaccct atcttgacga tttcaaaaaa gaacacaacc tggacatcac cgaagccttc 360
 caagtgccga ccgcgccttt gggactgtat ccgggcaaac tgaaatcgct ggaagaagtc 420
 aaagacggca gcaccgtatc cgcgccaac gaccggtcca acttcgcacg cgccttggtg 480

atgctgaacg aactggggtg gatcaaaact aaagacggca tcaatccgct gaccgcatcc 540
 aaagccgaca tcgcggaaaa cctgaaaaac atcaaaatcg tcgagcttga agccgcacaa 600
 ctgccgcgca gccgcgccga cgtggatttt gccgtcgtca acggcaacta cgccataagc 660
 agcggcatga agctgaccga agccctgttc caagagccga gctttgccta tgtcaactgg 720
 tctgccgtca aaaccgccga caaagacagc caatggctta aagacgtaac cgaggcctat 780
 aactccgacg cgttcaaagc ctacgcgcac aaacgcttcg agggctacaa ataccctgcc 840
 gcatggaatg aaggcgcagc caaataa 867

<210> 226
 <211> 288
 <212> PRT

<213> Neisseria gonorrhoeae

<400> 226

Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile
1 5 10 15

Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala
20 25 30

Ala Ala Pro Ser Ala Asp Asn Gly Ala Ala Lys Lys Glu Ile Val Phe
35 40 45

Gly Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu Gln Ile Gln
50 55 60

Ala Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr
65 70 75 80

Asp Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile
85 90 95

Asn Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His
100 105 110

Asn Leu Asp Ile Thr Glu Ala Phe Gln Val Pro Thr Ala Pro Leu Gly
115 120 125

Leu Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser
130 135 140

Thr Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Ala Leu Val
145 150 155 160

Met Leu Asn Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro
165 170 175

Leu Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys
180 185 190

Ile Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val
195 200 205

Asp Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys
210 215 220

Leu Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp
225 230 235 240

Ser Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val
245 250 255

Thr Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg
260 265 270

Phe Glu Gly Tyr Lys Tyr Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys

275

280

285

<210> 227
 <211> 907
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 227
 cctcgctcgtc ctccggcatgc tccagttttca agggggcgatt tactccaagg cggtggaacg 60
 tatgctcggc acggtcatcg ggctggggcgc gggtttgggc gttttatggc tgaaccagca 120
 ttattttccac ggcaacctcc tttttacct caccgctcggc acggcaagcg cactggccgg 180
 ctggggcggcg gtcggcaaaa acggctacgt ccctmtgctg gcagggctga cgatgtgtat 240
 gctcatcggc gacaacggca gcgaatggct cgacagcggc ctcatgcgcg ccatgaacgt 300
 cctcatcggc gyggccatcg ccatcgccgc cgccaaactg ctgccgctga aatccacact 360
 gatgtggcgt ttcattgcttg ccgacaacct ggccgactgc agcaaatga ttgccgaaat 420
 cagcaacggc aggcgcattga cccgcgaacg cctcgaggag aacatggcga aaatgcgcca 480
 aatcaacgca cgcattggtca aaagccgcag ccattctgcc gccacatcgg gcgaaagctg 540
 catcagcccc gccatgatgg aagccatgca gcacgcccac cgtaaatcg tcaacaccac 600
 cgagctgctc ctgaccaccg ccgccaagct gcaatctccc aaactcaacg gcagcgaaat 660
 ccggctgctt gaccgccact tcacactgct ccaaacgcag acacgcccgc cgcattcgca 720
 tcgacaccgc catcaacccc gaactggaag ccctcgccga acacctccac taccaatggc 780
 agggcttcct ctggctcagc accgatatgc gtcaggaaat ttccgcccctc gtcattcctgc 840
 tgcaacgcac ccgcccgaat tggttgatg cccacgaacg ccaacacctg cgccaaagcc 900
 tgcttga 907

<210> 228
 <211> 301
 <212> PRT
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature
 <222> (72)..(72)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (195)..(195)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (224)..(224)
 <223> Xaa= any amino acid

<400> 228

Pro Arg Arg Pro Arg His Ala Pro Val Ser Arg Gly Asp Leu Leu Gln
 1 5 10 15
 Gly Gly Gly Thr Tyr Ala Arg His Gly His Arg Ala Gly Arg Gly Phe
 20 25 30
 Gly Arg Phe Met Ala Glu Pro Ala Leu Phe Pro Arg Gln Pro Pro Leu
 35 40 45

Leu Pro His Arg Arg His Gly Lys Arg Thr Gly Arg Leu Gly Gly Gly
 50 55 60
 Arg Gln Lys Arg Leu Arg Pro Xaa Ala Gly Arg Ala Asp Asp Val Tyr
 65 70 75 80
 Ala His Arg Arg Gln Arg Gln Arg Met Ala Arg Gln Arg Thr His Ala
 85 90 95
 Arg His Glu Arg Pro His Arg Arg Gly His Arg His Arg Arg Arg Gln
 100 105 110
 Thr Ala Ala Ala Glu Ile His Thr Asp Val Ala Phe His Ala Cys Arg
 115 120 125
 Gln Pro Gly Arg Leu Gln Gln Asn Asp Cys Arg Asn Gln Gln Arg Gln
 130 135 140
 Ala His Asp Pro Arg Thr Pro Arg Gly Glu His Gly Glu Asn Ala Pro
 145 150 155 160
 Asn Gln Arg Thr His Gly Gln Lys Pro Gln Pro Ser Arg Arg His Ile
 165 170 175
 Gly Arg Lys Leu His Gln Pro Arg His Asp Gly Ser His Ala Ala Arg
 180 185 190
 Pro Pro Xaa Asn Arg Gln His His Arg Ala Ala Pro Asp His Arg Arg
 195 200 205
 Gln Ala Ala Ile Ser Gln Thr Gln Arg Gln Arg Asn Pro Ala Ala Xaa
 210 215 220
 Pro Pro Leu His Thr Ala Pro Asn Gln Thr Arg Pro Pro His Pro His
 225 230 235 240
 Arg His Arg His Gln Pro Arg Thr Gly Ser Pro Arg Arg Thr Pro Pro
 245 250 255
 Leu Pro Met Ala Gly Leu Pro Leu Ala Gln His Arg Tyr Ala Ser Gly
 260 265 270
 Asn Phe Arg Pro Arg His Pro Ala Ala Thr His Pro Pro Gln Met Ala
 275 280 285
 Gly Cys Pro Arg Thr Pro Thr Pro Ala Pro Lys Pro Ala
 290 295 300

<210> 229
 <211> 8
 <212> DNA
 <213> *Neisseria gonorrhoeae*

<220>
 <221> misc_feature
 <222> (1)..(8)

<223> N= Unknown

<400> 229

nnnnnnnn

8

<210> 230

<211> 318

<212> PRT

<213> Neisseria gonorrhoeae

<400> 230

Met Asp Arg Asp Asp Arg Leu Arg Arg Pro Arg His Ala Pro Val Pro
1 5 10 15

Arg Arg Asp Leu Leu Gln Arg Gly Gly Thr Tyr Ala Arg Tyr Gly His
20 25 30

Arg Ala Gly Arg Gly Phe Gly Arg Phe Met Ala Glu Pro Ala Leu Phe
35 40 45

Pro Arg Gln Pro Pro Leu Leu Pro Asp His Arg His Gly Lys Arg Thr
50 55 60

Gly Arg Leu Gly Gly Gly Arg Gln Lys Arg Leu Arg Pro Tyr Val Gly
65 70 75 80

Gly Ala Asp Asp Val His Ala His Arg Arg Gln Arg Gln Arg Met Ala
85 90 95

Arg Gln Arg Pro Asp Ala Arg Asp Glu Arg Pro His Arg Arg Arg His
100 105 110

Arg His Cys Arg Arg Gln Thr Ala Ala Ala Glu Ile His Thr Asp Val
115 120 125

Ala Phe His Ala Cys Arg Gln Pro Gly Arg Leu Gln Gln Asn Asp Cys
130 135 140

Arg Asn Gln Gln Arg Gln Ala Tyr Asp Ala Arg Thr Phe Gly Ala Glu
145 150 155 160

Tyr Gly Gln Asn Ala Pro Asn Gln Arg Thr His Gly Gln Lys Pro Gln
165 170 175

Pro Pro Arg Arg His Ile Gly Arg Lys Pro His Gln Pro Leu His Asp
180 185 190

Gly Ser His Ala Ala Arg Pro Pro Gln Asn Arg Gln His His Arg Ala

195

200

205

Ala Pro Asp His Arg Arg Gln Ala Ala Ile Ser Gln Thr Gln Arg Gln
210 215 220

Arg Asn Pro Ala Ala Arg Pro Pro Leu His Thr Ala Pro Asn Arg Pro
225 230 235 240

Ala Thr Asn Arg Arg Pro His Gln Arg Gln Thr Arg Pro Pro His Pro
 245 250 255

His Arg His Arg His Gln Pro Arg Thr Gly Ser Pro Arg Arg Thr Pro
 260 265 270

Pro Leu Pro Met Ala Gly Phe Pro Leu Ala Gln His Gln Tyr Ala Ser
 275 280 285

Gly Asn Phe Arg Pro Arg His Pro Pro Ala Thr His Pro Pro Gln Met
 290 295 300

Ala Gly Cys Pro Arg Thr Pro Thr Pro Ala Pro Lys Pro Ala
 305 310 315

<210> 231
 <211> 567
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (22)..(22)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (40)..(40)
 <223> N= Unknown

<400> 231
 gaaatcagcc tgcggtccga cnacaggccg gtttccgtgn cgaagcggcg ggattcggaa 60
 cgttttctgc tggtggacgg cggcaacagc cggctcaagt gggcgtgggt ggaaaacggc 120
 acgttcgcaa ccgtcggtag cgcgccgtac cgcgatttgt cgcctttggg cgcggagtgg 180
 gcggaaaagg cggatggaaa tgtccgcata gtcggttgcg ctgtgtgcgg agaattcaaa 240
 aaggcacaag tgcaggaaca gctcgcccga aaaatcgagt ggctgccgtc ttccgcacag 300
 gctttggcat acgcaaccac taccgccacc ccgaagaaca cggttccgac cgctggttca 360
 acgccttggg cagccgcgcg ttcagccgca acgcctgcgt cgtcgtcagt tgcggcacgg 420
 cggtaacggt tgacgcgctc accgatgacg gacattatct cggagaggaa ccatcatgcc 480
 cggttttccac ctgatgaaag aatcgctcgc cgtccgaacc gccaacctca accggcacgc 540
 cggtaagcgt tatcctttcc cgaccgg 567

<210> 232
 <211> 189
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (8)..(8)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature

<222> (14)..(14)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (102)..(102)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (156)..(156)
 <223> Xaa= any amino acid

<400> 232
 Glu Ile Ser Leu Arg Ser Asp Xaa Arg Pro Val Ser Val Xaa Lys Arg
 1 5 10 15
 Arg Asp Ser Glu Arg Phe Leu Leu Leu Asp Gly Gly Asn Ser Arg Leu
 20 25 30
 Lys Trp Ala Trp Val Glu Asn Gly Thr Phe Ala Thr Val Gly Ser Ala
 35 40 45
 Pro Tyr Arg Asp Leu Ser Pro Leu Gly Ala Glu Trp Ala Glu Lys Ala
 50 55 60
 Asp Gly Asn Val Arg Ile Val Gly Cys Ala Val Cys Gly Glu Phe Lys
 65 70 75 80
 Lys Ala Gln Val Gln Glu Gln Leu Ala Arg Lys Ile Glu Trp Leu Pro
 85 90 95
 Ser Ser Ala Gln Ala Xaa Gly Ile Arg Asn His Tyr Arg His Pro Glu
 100 105 110
 Glu His Gly Ser Asp Arg Trp Phe Asn Ala Leu Gly Ser Arg Arg Phe
 115 120 125
 Ser Arg Asn Ala Cys Val Val Val Ser Cys Gly Thr Ala Val Thr Val
 130 135 140
 Asp Ala Leu Thr Asp Asp Gly His Tyr Leu Gly Xaa Gly Thr Ile Met
 145 150 155 160
 Pro Gly Phe His Leu Met Lys Glu Ser Leu Ala Val Arg Thr Ala Asn
 165 170 175
 Leu Asn Arg His Ala Gly Lys Arg Tyr Pro Phe Pro Thr
 180 185

<210> 233
 <211> 1779
 <212> DNA
 <213> Neisseria meningitidis

<400> 233
atgacggttt tgaagctttc gcaactggcg gtgttggcgg agcttgccga cggtttgccg 60
caacacgtct cgcaactggc gcgtatggcg gatatgaagc cgcagcagct caacggtttt 120
tggcagcaga tgccggcgca catacgcggg ctgttgcgcc aacacgacgg ctattggcgg 180
ctgggtgcgcc cattggcggg tttcgatgcc gaaggtttgc gcgagctggg ggaaaggtcg 240
ggttttcaga cggcattgaa gcacgagtc gcgtccagca acgacgagat actggaattg 300
gcgcggattg cgccggacaa ggcgcacaaa accatatgcg tgaccacact gcaaagtaag 360
ggcagggggc ggcagggggc gaagtggcgc caccgtttgg gcgagtgtct gatgttcagt 420
tttggctggg tgtttgaccg gccgcagtat gagttgggtt cgctgtcgcc tgttgcggca 480
gtggcgtgtc ggcgcgctt gtcgcgttta ggtttggatg tgcagattaa gtggcccaat 540
gatttggttg tcggacgcga caaattgggc ggcatctga ttgaaacggc caggacgggc 600
ggcaaaacgg ttgccgtggc cggtatcggc atcaattttg tcctgcccga ggaagtagaa 660
aatgccgctt ccgtgcaatc gctgtttcag acggcatcgc ggcggggcaa tgccgatgcc 720
gccgtgctgc tggaaacgct gttggtggaa ctggacgcgg tgttgttgca atatgcgcgg 780
gacggatttg cgctttttgt ggcggaatat caggctgcca accgcgacca cggcaaggcg 840
gtattgctgt tcgcgcacgg cgaaaccgtg ttcgaaggca cggttaaagg cgtggacgga 900
caaggcgttt tgcaactgga aacggcagag ggcaaacaga cggtcgtcag cggcgaaatc 960
agcctgcggc ccgacgacag gccggtttcc gtgccgaagc ggcgggattc ggaacgtttt 1020
ctgctgttgg acggcgggaa cagccggctc aagtgggcgt gggtggaata cggcacgttc 1080
gcaaccgtcg gtagcgcgc gtaccgcgat ttgtcgctt tggcgcgga gtggcgga 1140
aaggcggatg gaaatgtccg catcgtcggg tgcgtgtgt gcggagaatt caaaaaggca 1200
caagtgcagg aacagctcgc ccgaaaaatc gagtggctgc cgtcttccgc acaggctttg 1260
ggcatacgc accactaccg ccaccccgaa gaacacgggt ccgaccgctg gttcaacgcc 1320
ttgggcagcc gccgcttcag ccgcaacgcc tgcgtcgtcg tcagttgcgg cacggcggtg 1380
acggttgacg cgctcaccga tgacggacat tatctcgggg gaaccatcat gcccggttc 1440
cacctgatga aagaatcgct cgccgtccga accgccaacc tcaaccggca gcccggtgaa 1500
cgttatcctt tcccgaccac aacgggcaat gccgtcgcca gcggcatgat ggatgcgggt 1560
tgccgctcgg ttatgatgat gcacgggctg ttgaaagaaa aaaccggggc gggcaagcct 1620
gtcgatgtca tcattaccgg cggcggcgcg gcaaaaagtt ccgaagccct gccgcctgca 1680
tttttggcgg aaaataccgt gcgcgtggcg gacaacctcg tcatttacgg gttgttgaac 1740
atgattgccg ccgaaggcag ggaatatgaa catatttaa 1779

<210> 234
<211> 592
<212> PRT
<213> *Neisseria meningitidis*

<400> 234
Met Thr Val Leu Lys Leu Ser His Trp Arg Val Leu Ala Glu Leu Ala
1 5 10 15
Asp Gly Leu Pro Gln His Val Ser Gln Leu Ala Arg Met Ala Asp Met
20 25 30
Lys Pro Gln Gln Leu Asn Gly Phe Trp Gln Gln Met Pro Ala His Ile
35 40 45
Arg Gly Leu Leu Arg Gln His Asp Gly Tyr Trp Arg Leu Val Arg Pro
50 55 60
Leu Ala Val Phe Asp Ala Glu Gly Leu Arg Glu Leu Gly Glu Arg Ser
65 70 75 80
Gly Phe Gln Thr Ala Leu Lys His Glu Cys Ala Ser Ser Asn Asp Glu
85 90 95

Ile Leu Glu Leu Ala Arg Ile Ala Pro Asp Lys Ala His Lys Thr Ile
 100 105 110
 Cys Val Thr His Leu Gln Ser Lys Gly Arg Gly Arg Gln Gly Arg Lys
 115 120 125
 Trp Ser His Arg Leu Gly Glu Cys Leu Met Phe Ser Phe Gly Trp Val
 130 135 140
 Phe Asp Arg Pro Gln Tyr Glu Leu Gly Ser Leu Ser Pro Val Ala Ala
 145 150 155 160
 Val Ala Cys Arg Arg Ala Leu Ser Arg Leu Gly Leu Asp Val Gln Ile
 165 170 175
 Lys Trp Pro Asn Asp Leu Val Val Gly Arg Asp Lys Leu Gly Gly Ile
 180 185 190
 Leu Ile Glu Thr Val Arg Thr Gly Gly Lys Thr Val Ala Val Val Gly
 195 200 205
 Ile Gly Ile Asn Phe Val Leu Pro Lys Glu Val Glu Asn Ala Ala Ser
 210 215 220
 Val Gln Ser Leu Phe Gln Thr Ala Ser Arg Arg Gly Asn Ala Asp Ala
 225 230 235 240
 Ala Val Leu Leu Glu Thr Leu Leu Val Glu Leu Asp Ala Val Leu Leu
 245 250 255
 Gln Tyr Ala Arg Asp Gly Phe Ala Pro Phe Val Ala Glu Tyr Gln Ala
 260 265 270
 Ala Asn Arg Asp His Gly Lys Ala Val Leu Leu Leu Arg Asp Gly Glu
 275 280 285
 Thr Val Phe Glu Gly Thr Val Lys Gly Val Asp Gly Gln Gly Val Leu
 290 295 300
 His Leu Glu Thr Ala Glu Gly Lys Gln Thr Val Val Ser Gly Glu Ile
 305 310 315 320
 Ser Leu Arg Ser Asp Asp Arg Pro Val Ser Val Pro Lys Arg Arg Asp
 325 330 335
 Ser Glu Arg Phe Leu Leu Leu Asp Gly Gly Asn Ser Arg Leu Lys Trp
 340 345 350
 Ala Trp Val Glu Asn Gly Thr Phe Ala Thr Val Gly Ser Ala Pro Tyr
 355 360 365
 Arg Asp Leu Ser Pro Leu Gly Ala Glu Trp Ala Glu Lys Ala Asp Gly
 370 375 380

Asn Val Arg Ile Val Gly Cys Ala Val Cys Gly Glu Phe Lys Lys Ala
 385 390 395 400
 Gln Val Gln Glu Gln Leu Ala Arg Lys Ile Glu Trp Leu Pro Ser Ser
 405 410 415
 Ala Gln Ala Leu Gly Ile Arg Asn His Tyr Arg His Pro Glu Glu His
 420 425 430
 Gly Ser Asp Arg Trp Phe Asn Ala Leu Gly Ser Arg Arg Phe Ser Arg
 435 440 445
 Asn Ala Cys Val Val Val Ser Cys Gly Thr Ala Val Thr Val Asp Ala
 450 455 460
 Leu Thr Asp Asp Gly His Tyr Leu Gly Gly Thr Ile Met Pro Gly Phe
 465 470 475 480
 His Leu Met Lys Glu Ser Leu Ala Val Arg Thr Ala Asn Leu Asn Arg
 485 490 495
 His Ala Gly Lys Arg Tyr Pro Phe Pro Thr Thr Thr Gly Asn Ala Val
 500 505 510
 Ala Ser Gly Met Met Asp Ala Val Cys Gly Ser Val Met Met Met His
 515 520 525
 Gly Arg Leu Lys Glu Lys Thr Gly Ala Gly Lys Pro Val Asp Val Ile
 530 535 540
 Ile Thr Gly Gly Gly Ala Ala Lys Val Ala Glu Ala Leu Pro Pro Ala
 545 550 555 560
 Phe Leu Ala Glu Asn Thr Val Arg Val Ala Asp Asn Leu Val Ile Tyr
 565 570 575
 Gly Leu Leu Asn Met Ile Ala Ala Glu Gly Arg Glu Tyr Glu His Ile
 580 585 590

<210> 235
 <211> 1779
 <212> DNA
 <213> Neisseria meningitidis

<400> 235
 atgacggttt tgaagccttc gcaactggcg gtggttgccg agcttgccga cggtttgccg 60
 caacacgtct cgcaactggc gcgtatggcg gatatgaagc cgcagcagct caacggtttt 120
 tggcagcaga tgccggcgca catacgcggt ctggtgccc aacacgacgg ctattggcgg 180
 ctggtgccc cattggcgtt ttctgatgcc gaaggtttgc gcgagctggg ggaaaggctg 240
 gggttttcaga cggcattgaa gcacgagtg gcgtccagca acgacgagat actggaattg 300
 gcgcggattg cgccggacaa ggcgcacaaa accatatgtg tgaccacact gcaaagtaag 360
 ggcagggggc ggcagggggc gaagtggctg caccgtttgg gcgagtgctt gatgttcagt 420
 tttggctggg tgtttgaccg gccgcagtat gagttgggtt cgctgtcgcc tgttgccgca 480

 gtggcggtgc ggccgcgctt gtcgcgtttg gggttgaaaa cgcaaatcaa gtggccaaac 540
 gatttggtcg tcggacgcga caaattgggc ggcattctga ttgaaacggt caggacgggc 600

ggcaaaacgg	ttgccgtggt	cggtatcggc	atcaattttcg	tgctgcccac	ggaagtggaa	660
aacgccgctt	ccgtgcaatc	gctgttttcag	acggcatcgc	ggcggggaaa	tgccgatgcc	720
gccgtgttgc	tgaaaacgct	gttggcggaa	cttgatgcgg	tggtgttgca	atatgcgcgg	780
gacggatttg	cgccttttgc	ggcgaatat	caggctgcc	accgcgacca	cggcaaggcg	840
gtattgctgt	tgcgcgacgg	cgaaaccgtg	ttcgaaggca	cggttaaagg	cgtggacgga	900
caaggcgctt	tgcaacttga	aacggcagag	ggcaaacaga	cggtcgtcag	cggcgaaatc	960
agcctgcggt	ccgacgacag	gccggtttcc	gtgccgaagc	ggcgggattc	ggaacgtttt	1020
ctgctgttgg	acggcggcaa	cagccggctc	aagtgggctg	gggtggaaaa	cggcacgttc	1080
gcaaccgtcg	gtagcgcgcc	gtaccgcgat	ttgtcgccct	tgggcgcgga	gtgggcggaa	1140
aagggtggatg	gaaatgtccg	catcgtcggg	tgcgccgtgt	gcggagaatt	caaaaaggca	1200
caagtgcagg	aacagctcgc	ccgaaaaatc	gagtggtcgc	cgtcttccgc	acaggctttg	1260
ggcatacgca	accactaccg	ccaccccgaa	gaacacggtt	ccgaccgctg	gttcaacgcc	1320
ttgggcagcc	gccgcttcag	ccgcaacgcc	tgctgcgtcg	tcagttgcgg	cacggcggtg	1380
acggttgacg	cgctcaccga	tgacggacat	tatctcgggg	gaaccatcat	gcccgttttc	1440
cacctgatga	aagaatcgct	cgccgtccga	accgccaacc	tcaaccggca	cgccggtgag	1500
cggtatcctt	ttccgaccac	aacgggcaat	gccgtcgcca	gcggcatgat	ggatgcggtt	1560
tgccggtcgg	ttatgatgat	gcacggcggt	ttgaaagaaa	aaaccggggc	gggcaagcct	1620
gtcgatgtca	tcattaccgg	cgccggcgcg	gcaaaagtgt	ccgaagccct	gccgctgca	1680
tttttggcgg	aaaataccgt	gcgcgtggcg	gacaacctcg	tcattcacgg	gctgctgaac	1740
ctgattgccg	ccgaaggcgg	ggaatcggaa	catacttaa			1779

<210> 236

<211> 592

<212> PRT

<213> Neisseria meningitidis

<400> 236

Met	Thr	Val	Leu	Lys	Pro	Ser	His	Trp	Arg	Val	Leu	Ala	Glu	Leu	Ala
1				5					10					15	

Asp	Gly	Leu	Pro	Gln	His	Val	Ser	Gln	Leu	Ala	Arg	Met	Ala	Asp	Met
			20					25					30		

Lys	Pro	Gln	Gln	Leu	Asn	Gly	Phe	Trp	Gln	Gln	Met	Pro	Ala	His	Ile
		35					40					45			

Arg	Gly	Leu	Leu	Arg	Gln	His	Asp	Gly	Tyr	Trp	Arg	Leu	Val	Arg	Pro
	50					55					60				

Leu	Ala	Val	Phe	Asp	Ala	Glu	Gly	Leu	Arg	Glu	Leu	Gly	Glu	Arg	Ser
65					70				75					80	

Gly	Phe	Gln	Thr	Ala	Leu	Lys	His	Glu	Cys	Ala	Ser	Ser	Asn	Asp	Glu
			85						90					95	

Ile	Leu	Glu	Leu	Ala	Arg	Ile	Ala	Pro	Asp	Lys	Ala	His	Lys	Thr	Ile
			100					105					110		

Cys	Val	Thr	His	Leu	Gln	Ser	Lys	Gly	Arg	Gly	Arg	Gln	Gly	Arg	Lys
		115					120					125			

Trp	Ser	His	Arg	Leu	Gly	Glu	Cys	Leu	Met	Phe	Ser	Phe	Gly	Trp	Val
	130						135					140			

Phe	Asp	Arg	Pro	Gln	Tyr	Glu	Leu	Gly	Ser	Leu	Ser	Pro	Val	Ala	Ala
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

145		150		155		160
Val Ala Cys Arg Arg Ala Leu Ser Arg Leu Gly Leu Lys Thr Gln Ile						
		165		170		175
Lys Trp Pro Asn Asp Leu Val Val Gly Arg Asp Lys Leu Gly Gly Ile						
		180		185		190
Leu Ile Glu Thr Val Arg Thr Gly Gly Lys Thr Val Ala Val Val Gly						
		195		200		205
Ile Gly Ile Asn Phe Val Leu Pro Lys Glu Val Glu Asn Ala Ala Ser						
		210		215		220
Val Gln Ser Leu Phe Gln Thr Ala Ser Arg Arg Gly Asn Ala Asp Ala						
		225		230		235
				235		240
Ala Val Leu Leu Glu Thr Leu Leu Ala Glu Leu Asp Ala Val Leu Leu						
		245		250		255
Gln Tyr Ala Arg Asp Gly Phe Ala Pro Phe Val Ala Glu Tyr Gln Ala						
		260		265		270
Ala Asn Arg Asp His Gly Lys Ala Val Leu Leu Leu Arg Asp Gly Glu						
		275		280		285
Thr Val Phe Glu Gly Thr Val Lys Gly Val Asp Gly Gln Gly Val Leu						
		290		295		300
His Leu Glu Thr Ala Glu Gly Lys Gln Thr Val Val Ser Gly Glu Ile						
		305		310		315
				315		320
Ser Leu Arg Ser Asp Asp Arg Pro Val Ser Val Pro Lys Arg Arg Asp						
		325		330		335
Ser Glu Arg Phe Leu Leu Leu Asp Gly Gly Asn Ser Arg Leu Lys Trp						
		340		345		350
Ala Trp Val Glu Asn Gly Thr Phe Ala Thr Val Gly Ser Ala Pro Tyr						
		355		360		365
Arg Asp Leu Ser Pro Leu Gly Ala Glu Trp Ala Glu Lys Val Asp Gly						
		370		375		380
Asn Val Arg Ile Val Gly Cys Ala Val Cys Gly Glu Phe Lys Lys Ala						
		385		390		395
				395		400
Gln Val Gln Glu Gln Leu Ala Arg Lys Ile Glu Trp Leu Pro Ser Ser						
		405		410		415
Ala Gln Ala Leu Gly Ile Arg Asn His Tyr Arg His Pro Glu Glu His						
		420		425		430
Gly Ser Asp Arg Trp Phe Asn Ala Leu Gly Ser Arg Arg Phe Ser Arg						
		435		440		445

Asn Ala Cys Val Val Val Ser Cys Gly Thr Ala Val Thr Val Asp Ala
 450 455 460
 Leu Thr Asp Asp Gly His Tyr Leu Gly Gly Thr Ile Met Pro Gly Phe
 465 470 475 480
 His Leu Met Lys Glu Ser Leu Ala Val Arg Thr Ala Asn Leu Asn Arg
 485 490 495
 His Ala Gly Lys Arg Tyr Pro Phe Pro Thr Thr Thr Gly Asn Ala Val
 500 505 510
 Ala Ser Gly Met Met Asp Ala Val Cys Gly Ser Val Met Met Met His
 515 520 525
 Gly Arg Leu Lys Glu Lys Thr Gly Ala Gly Lys Pro Val Asp Val Ile
 530 535 540
 Ile Thr Gly Gly Gly Ala Ala Lys Val Ala Glu Ala Leu Pro Pro Ala
 545 550 555 560
 Phe Leu Ala Glu Asn Thr Val Arg Val Ala Asp Asn Leu Val Ile His
 565 570 575
 Gly Leu Leu Asn Leu Ile Ala Ala Glu Gly Gly Glu Ser Glu His Thr
 580 585 590

<210> 237
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 237
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8

<210> 238
 <211> 455
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 238
 Met Phe Ser Phe Gly Trp Ala Phe Asp Arg Pro Gln Tyr Glu Leu Gly
 1 5 10 15
 Ser Leu Ser Pro Val Ala Ala Leu Ala Cys Arg Arg Ala Leu Gly Cys
 20 25 30
 Leu Gly Leu Glu Thr Gln Ile Lys Trp Pro Asn Asp Leu Val Val Gly
 35 40 45
 Arg Asp Lys Leu Gly Gly Ile Leu Ile Glu Thr Val Arg Ala Gly Gly

50	55	60
Lys Thr Val Ala Val Val Gly Ile Gly Ile Asn Phe Val Leu Pro Lys 65 70 75 80		
Glu Val Glu Asn Ala Ala Ser Val Gln Ser Leu Phe Gln Thr Ala Ser 85 90 95		
Arg Arg Gly Asn Ala Asp Ala Ala Val Leu Leu Glu Thr Leu Leu Ala 100 105 110		
Glu Leu Gly Ala Val Leu Glu Gln Tyr Ala Glu Glu Gly Phe Ala Pro 115 120 125		
Phe Leu Asn Glu Tyr Glu Thr Ala Asn Arg Asp His Gly Lys Ala Val 130 135 140		
Leu Leu Leu Arg Asp Gly Glu Thr Val Cys Glu Gly Thr Val Lys Gly 145 150 155 160		
Val Asp Gly Arg Gly Val Leu His Leu Glu Thr Ala Glu Gly Glu Gln 165 170 175		
Thr Val Val Ser Gly Glu Ile Ser Leu Arg Pro Asp Asn Arg Ser Val 180 185 190		
Ser Val Pro Lys Arg Pro Asp Ser Glu Arg Phe Leu Leu Leu Glu Gly 195 200 205		
Gly Asn Ser Arg Leu Lys Trp Ala Trp Val Glu Asn Gly Thr Phe Ala 210 215 220		
Thr Val Gly Ser Ala Pro Tyr Arg Asp Leu Ser Pro Leu Gly Ala Glu 225 230 235 240		
Trp Ala Glu Lys Ala Asp Gly Asn Val Arg Ile Val Gly Cys Ala Val 245 250 255		
Cys Gly Glu Ser Lys Lys Ala Gln Val Lys Glu Gln Leu Ala Arg Lys 260 265 270		
Ile Glu Trp Leu Pro Ser Ser Ala Gln Ala Leu Gly Ile Arg Asn His 275 280 285		
Tyr Arg His Pro Glu Glu His Gly Ser Asp Arg Trp Phe Asn Ala Leu 290 295 300		
Gly Ser Arg Arg Phe Ser Arg Asn Ala Cys Val Val Val Ser Cys Gly 305 310 315 320		
Thr Ala Val Thr Val Asp Ala Leu Thr Asp Asp Gly His Tyr Leu Gly 325 330 335		
Gly Thr Ile Met Pro Gly Phe His Leu Met Lys Glu Ser Leu Ala Val 340 345 350		

Arg Thr Ala Asn Leu Asn Arg Pro Ala Gly Lys Arg Tyr Pro Phe Pro
355 360 365

Thr Thr Thr Gly Asn Ala Val Ala Ser Gly Met Met Asp Ala Val Cys
370 375 380

Gly Ser Ile Met Met Met His Gly Arg Leu Lys Glu Lys Asn Gly Ala
385 390 395 400

Gly Lys Pro Val Asp Val Ile Ile Thr Gly Gly Gly Ala Ala Lys Val
405 410 415

Ala Glu Ala Leu Pro Pro Ala Phe Leu Ala Glu Asn Thr Val Arg Val
420 425 430

Ala Asp Asn Leu Val Ile His Gly Leu Leu Asn Leu Ile Ala Ala Glu
435 440 445

Gly Gly Glu Ser Glu His Ala
450 455

<210> 239
<211> 1779
<212> DNA
<213> Neisseria gonorrhoeae

<400> 239
atgacggttt tgaagccttc gcattggcgg gtgttggcgg agcttgccga cggtttgccg 60
caacacgtat cgcaattggc gcgtgaggcg gacatgaagc cgcagcagct caacggtttt 120
tggcagcaga tgccggcgca tatacgcggg ctgttgccgc aacacgacgg ctattggcgg 180
ctggtgcgcc ccttggcggg tttcgatgcc gaaggtttgc gcgatctggg ggaaaggctg 240
ggttttcaga cggcattgaa gcacgagtc gcgtccagca acgacgagat actggaattg 300
gcgcggattg cgcgggacaa ggcgcacaaa accatatgcg tgacccacct gcaaagtaag 360
ggcagggggc ggcagggggc gaagtggctg caccgtttgg gcgagtgccg gatgttcagt 420
ttcggctggg cgtttgaccc ggcgcagtat gaggttgggt cgctgtcgcc tgttgccgca 480
cttgctggcc ggcgcgcttt ggggtgtttg ggtttggaaa cgcaaataca gtggccaaac 540
gatttggtcg tcggacgcga caaattgggc ggcattctga ttgaaacagt cagggcgggc 600
ggtaaaacgg ttgcggtggc cggtatcggc atcaatttcg tgctgcccga ggaagtggaa 660
aacgcgcgtt cgtgagtcg gctgtttcag acggcatcgc ggcggggcaa tgccgatgcc 720
gccgtattgc tggaaacatt gcttgccgaa ctgggcgcgg tgttggaaaca atatgcggaa 780
gaagggttcg cgcattttt aaatgagtat gaaacggcca accgcgacca cggcaaggcg 840
gtattgctgt tgcgcgacgg cgaaaccgtg tgcgaaggca cggttaaagg cgtggacgga 900
cgaggcgctt tgcacttgga aacggcagaa ggcgaacaga cggtcgtcag cggcgaaatc 960
agcctgcggc ccgacaacag gtcggtttcc gtgccgaagc ggccggattc ggaacgtttt 1020
ttgctgttgg aaggcgggaa cagccggctc aagtgggctg ggggtggaaa cggcacgttc 1080
gcaaccgtgg gcagcgcgcc gtaccgcgat ttgtgcctt tgggcgcgga gtgggcggaa 1140
aaggcggatg gaaatgtccg catcgctcgt tgcgccgtgt gcggagaatc caaaaaggca 1200
caagtgaagg aacagctcgc ccgaaaaatc gagggtgtgc cgtcttcgc acaggctttg 1260
ggcatacgc accactaccg ccaccccgaa gaacacggtt ccgaccgttg gttcaacgcc 1320
ttgggcagcc gccgcttcag ccgcaacgcc tgcgtcgtcg tcagttgcgg cacggcggtg 1380
acggttgacg cgtcaccga tgacggacat tatctcggcg gaaccatcat gcccggttc 1440
cacctgatga aagaatcgct cgcgctccga accgccaacc tcaaccgccc cgcgggcaaa 1500
cgttaccctt tcccgaccac aacgggcaac gccgtcgcaa gcggcatgat ggacgcggtt 1560
tgccgctcga taatgatgat gcacggccgt ttgaaagaaa aaaacggcg cggcaagcct 1620
gtcagatgtca tcattaccgg cggcggcgcg gcgaaagtcg ccgaagccct gccgcctgca 1680

tttttggcgg aaaataccgt gcgcgtggcg gacaacctcg tcattccacgg gctgctgaac 1740

ctgattgccg ccgaaggcgg ggaatcggaa cagcgttaa 1779

<210> 240
 <211> 592
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 240
 Met Thr Val Leu Lys Pro Ser His Trp Arg Val Leu Ala Glu Leu Ala
 1 5 10 15
 Asp Gly Leu Pro Gln His Val Ser Gln Leu Ala Arg Glu Ala Asp Met
 20 25 30
 Lys Pro Gln Gln Leu Asn Gly Phe Trp Gln Gln Met Pro Ala His Ile
 35 40 45
 Arg Gly Leu Leu Arg Gln His Asp Gly Tyr Trp Arg Leu Val Arg Pro
 50 55 60
 Leu Ala Val Phe Asp Ala Glu Gly Leu Arg Asp Leu Gly Glu Arg Ser
 65 70 75 80
 Gly Phe Gln Thr Ala Leu Lys His Glu Cys Ala Ser Ser Asn Asp Glu
 85 90 95
 Ile Leu Glu Leu Ala Arg Ile Ala Pro Asp Lys Ala His Lys Thr Ile
 100 105 110
 Cys Val Thr His Leu Gln Ser Lys Gly Arg Gly Arg Gln Gly Arg Lys
 115 120 125
 Trp Ser His Arg Leu Gly Glu Cys Leu Met Phe Ser Phe Gly Trp Ala
 130 135 140
 Phe Asp Arg Pro Gln Tyr Glu Leu Gly Ser Leu Ser Pro Val Ala Ala
 145 150 155 160
 Leu Ala Cys Arg Arg Ala Leu Gly Cys Leu Gly Leu Glu Thr Gln Ile
 165 170 175
 Lys Trp Pro Asn Asp Leu Val Val Gly Arg Asp Lys Leu Gly Gly Ile
 180 185 190
 Leu Ile Glu Thr Val Arg Ala Gly Gly Lys Thr Val Ala Val Val Gly
 195 200 205
 Ile Gly Ile Asn Phe Val Leu Pro Lys Glu Val Glu Asn Ala Ala Ser
 210 215 220
 Val Gln Ser Leu Phe Gln Thr Ala Ser Arg Arg Gly Asn Ala Asp Ala
 225 230 235 240
 Ala Val Leu Leu Glu Thr Leu Leu Ala Glu Leu Gly Ala Val Leu Glu

245							250							255						
Gln	Tyr	Ala	Glu	Glu	Gly	Phe	Ala	Pro	Phe	Leu	Asn	Glu	Tyr	Glu	Thr					
			260					265					270							
Ala	Asn	Arg	Asp	His	Gly	Lys	Ala	Val	Leu	Leu	Leu	Arg	Asp	Gly	Glu					
		275					280					285								
Thr	Val	Cys	Glu	Gly	Thr	Val	Lys	Gly	Val	Asp	Gly	Arg	Gly	Val	Leu					
	290					295					300									
His	Leu	Glu	Thr	Ala	Glu	Gly	Glu	Gln	Thr	Val	Val	Ser	Gly	Glu	Ile					
305					310					315					320					
Ser	Leu	Arg	Pro	Asp	Asn	Arg	Ser	Val	Ser	Val	Pro	Lys	Arg	Pro	Asp					
				325					330					335						
Ser	Glu	Arg	Phe	Leu	Leu	Leu	Glu	Gly	Gly	Asn	Ser	Arg	Leu	Lys	Trp					
			340					345					350							
Ala	Trp	Val	Glu	Asn	Gly	Thr	Phe	Ala	Thr	Val	Gly	Ser	Ala	Pro	Tyr					
		355					360					365								
Arg	Asp	Leu	Ser	Pro	Leu	Gly	Ala	Glu	Trp	Ala	Glu	Lys	Ala	Asp	Gly					
	370					375					380									
Asn	Val	Arg	Ile	Val	Gly	Cys	Ala	Val	Cys	Gly	Glu	Ser	Lys	Lys	Ala					
385					390					395					400					
Gln	Val	Lys	Glu	Gln	Leu	Ala	Arg	Lys	Ile	Glu	Trp	Leu	Pro	Ser	Ser					
				405					410					415						
Ala	Gln	Ala	Leu	Gly	Ile	Arg	Asn	His	Tyr	Arg	His	Pro	Glu	Glu	His					
			420					425					430							
Gly	Ser	Asp	Arg	Trp	Phe	Asn	Ala	Leu	Gly	Ser	Arg	Arg	Phe	Ser	Arg					
		435					440					445								
Asn	Ala	Cys	Val	Val	Val	Ser	Cys	Gly	Thr	Ala	Val	Thr	Val	Asp	Ala					
	450					455					460									
Leu	Thr	Asp	Asp	Gly	His	Tyr	Leu	Gly	Gly	Thr	Ile	Met	Pro	Gly	Phe					
465					470					475					480					
His	Leu	Met	Lys	Glu	Ser	Leu	Ala	Val	Arg	Thr	Ala	Asn	Leu	Asn	Arg					
				485					490					495						
Pro	Ala	Gly	Lys	Arg	Tyr	Pro	Phe	Pro	Thr	Thr	Thr	Gly	Asn	Ala	Val					
			500					505					510							
Ala	Ser	Gly	Met	Met	Asp	Ala	Val	Cys	Gly	Ser	Ile	Met	Met	Met	His					
		515					520					525								
Gly	Arg	Leu	Lys	Glu	Lys	Asn	Gly	Ala	Gly	Lys	Pro	Val	Asp	Val	Ile					
	530					535					540									

Ile Thr Gly Gly Gly Ala Ala Lys Val Ala Glu Ala Leu Pro Pro Ala
 545 550 555 560

Phe Leu Ala Glu Asn Thr Val Arg Val Ala Asp Asn Leu Val Ile His
 565 570 575

Gly Leu Leu Asn Leu Ile Ala Ala Glu Gly Gly Glu Ser Glu His Ala
 580 585 590

<210> 241
 <211> 648
 <212> DNA
 <213> Neisseria meningitidis

<400> 241
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 gtctatggcg gcatcgatcc cgcattgatg gtcggcgtgc gcctgctaata tgccgcgctg 120
 cctgcactgc ccgcctgccg ccgtcatgtc ggcaagattc cgcgtgagga atggaagccg 180
 ttgctgattg tgcgttcgt caactatgtg ctgaccctgc tgcttcagtt tgcggggtg 240
 aaatacactt ccgccgccag cgcacgtgctc attgtcggac tcgagccgct gctgatgggtg 300
 tttgtcggac actttttctt caacgacaaa gcgcgtgcct accactggat atgcggcgcg 360
 gcggcatttg ccggtgtcgc gctgctgatg gcgggcgggtg cggaagaggg cggcgaagtc 420
 ggctgggttcg gctgcctgct ggtgttggtg gcgggcggcg gcttttgtgc cgctatgcgt 480
 ccgacgcaaa ggctgattgc acgcacggc gcaccggcat tcacatctgt ttccattgcc 540
 gccgcacgtg tgatgtgcct gccgttttcg cttgctttgg cgcaaagtta taccgtggac 600
 tggagcgtcg ggatggtatt gtcgctgctg tatttggtt tgggggtgc 648

<210> 242
 <211> 216
 <212> PRT
 <213> Neisseria meningitidis

<400> 242
 Met Phe Tyr Gln Ile Leu Ala Leu Ile Ile Trp Ser Ser Ser Phe Ile
 1 5 10 15
 Ala Ala Lys Tyr Val Tyr Gly Gly Ile Asp Pro Ala Leu Met Val Gly
 20 25 30
 Val Arg Leu Leu Ile Ala Ala Leu Pro Ala Leu Pro Ala Cys Arg Arg
 35 40 45
 His Val Gly Lys Ile Pro Arg Glu Glu Trp Lys Pro Leu Leu Ile Val
 50 55 60
 Ser Phe Val Asn Tyr Val Leu Thr Leu Leu Leu Gln Phe Val Gly Leu
 65 70 75 80
 Lys Tyr Thr Ser Ala Ala Ser Ala Ser Val Ile Val Gly Leu Glu Pro
 85 90 95
 Leu Leu Met Val Phe Val Gly His Phe Phe Phe Asn Asp Lys Ala Arg
 100 105 110
 Ala Tyr His Trp Ile Cys Gly Ala Ala Ala Phe Ala Gly Val Ala Leu

115 120 125
 Leu Met Ala Gly Gly Ala Glu Glu Gly Gly Glu Val Gly Trp Phe Gly
 130 135 140

 Cys Leu Leu Val Leu Leu Ala Gly Ala Gly Phe Cys Ala Ala Met Arg
 145 150 155 160

 Pro Thr Gln Arg Leu Ile Ala Arg Ile Gly Ala Pro Ala Phe Thr Ser
 165 170 175

 Val Ser Ile Ala Ala Ala Ser Leu Met Cys Leu Pro Phe Ser Leu Ala
 180 185 190

 Leu Ala Gln Ser Tyr Thr Val Asp Trp Ser Val Gly Met Val Leu Ser
 195 200 205

 Leu Leu Tyr Leu Gly Leu Gly Cys
 210 215

<210> 243
 <211> 855
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 243
 atgttttacc aaatccttgc cctgattatc tggagcagct cgttttattgc cgccaaatat 60
 gtctatggcg gcatcgatcc cgcattgatg gtcggcgtgc gcctgctaata tgccgcgctg 120
 cctgcactgc ccgcctgccg ccgtcatgtc ggcaagattc cgcgtgagga atggaagccg 180
 ttgctgattg tgcgttctgt caactatgtg ctgaccctgc tgcttcagtt tgcggggtg 240
 aaatacactt ccgcgccag cgcacgggtc attgtcggac tcgagccgct gctgatggtg 300
 tttgtcggac actttttctt caacgacaaa gcgcgtgcct accactggat atgcggcgcg 360
 gcggcatttg ccggtgtcgc gctgctgatg gcgggcgggtg cggaagaggg cggcgaagtc 420
 ggtggttgct gctgcctgct ggtgttggtg gcgggcggcg gcttttggtc cgctatgcgt 480
 ccgacgcaaa ggctgattgc acgcacggc gcaccggcat tcacatctgt ttccattgcc 540
 gccgatcgt tgatgtgcct gccgttttgc cttgctttgg cgcaaagtta taccgtggac 600
 tggagcgtcg ggatggtatt gtcgctgctg tatttgggtt tggggtgcgg ctggtacgcc 660
 tattggctgt ggaacaaggg gatgagccgt gttcctgcc atgtttcggg actgttgatt 720
 tcgctcgaac ccgtcgtcgg cgtgctgctg gcggttttga ttttgggcga acacctgtcg 780
 ccggtgtccg ccttgggcgt gtttgcgtc atcgccgcca ccttggttgc cggccggctg 840
 tcgcatcaaa aataa 855

<210> 244
 <211> 284
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 244
 Met Phe Tyr Gln Ile Leu Ala Leu Ile Ile Trp Ser Ser Ser Phe Ile
 1 5 10 15

 Ala Ala Lys Tyr Val Tyr Gly Gly Ile Asp Pro Ala Leu Met Val Gly
 20 25 30

 Val Arg Leu Leu Ile Ala Ala Leu Pro Ala Leu Pro Ala Cys Arg Arg
 35 40 45

His Val Gly Lys Ile Pro Arg Glu Glu Trp Lys Pro Leu Leu Ile Val
50 55 60

Ser Phe Val Asn Tyr Val Leu Thr Leu Leu Leu Gln Phe Val Gly Leu

65 70 75 80

Lys Tyr Thr Ser Ala Ala Ser Ala Ser Val Ile Val Gly Leu Glu Pro
85 90 95

Leu Leu Met Val Phe Val Gly His Phe Phe Phe Asn Asp Lys Ala Arg
100 105 110

Ala Tyr His Trp Ile Cys Gly Ala Ala Ala Phe Ala Gly Val Ala Leu
115 120 125

Leu Met Ala Gly Gly Ala Glu Glu Gly Gly Glu Val Gly Trp Phe Gly
130 135 140

Cys Leu Leu Val Leu Leu Ala Gly Ala Gly Phe Cys Ala Ala Met Arg
145 150 155 160

Pro Thr Gln Arg Leu Ile Ala Arg Ile Gly Ala Pro Ala Phe Thr Ser
165 170 175

Val Ser Ile Ala Ala Ala Ser Leu Met Cys Leu Pro Phe Ser Leu Ala
180 185 190

Leu Ala Gln Ser Tyr Thr Val Asp Trp Ser Val Gly Met Val Leu Ser
195 200 205

Leu Leu Tyr Leu Gly Leu Gly Cys Gly Trp Tyr Ala Tyr Trp Leu Trp
210 215 220

Asn Lys Gly Met Ser Arg Val Pro Ala Asn Val Ser Gly Leu Leu Ile
225 230 235 240

Ser Leu Glu Pro Val Val Gly Val Leu Leu Ala Val Leu Ile Leu Gly
245 250 255

Glu His Leu Ser Pro Val Ser Ala Leu Gly Val Phe Val Val Ile Ala
260 265 270

Ala Thr Leu Val Ala Gly Arg Leu Ser His Gln Lys
275 280

<210> 245
<211> 855
<212> DNA
<213> Neisseria meningitidis

<400> 245
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gtctatggcg gcatcgatcc cgcattgatg gtcggcgctgc gcctgctgat tgctgcgctg 120
cctgcactgc ccgcctgccg ccgtcatgtc ggcaagattc cgcgtagga atggaagccg 180

ttgctgattg	tgtcgttcgt	caactatgtg	ctgaccctgc	tacttcagtt	tgtcgggttg	240
aaatacactt	cgcgcgccag	cgcacgcgtc	attgtcggac	tcgagccact	gctgatggtg	300
tttgtcggac	actttttctt	caacgacaaa	gcgcgtgcct	accactggat	atgcggcgcg	360
gcggcatttg	cgggtgtcgc	gctgctgatg	gcgggcgggtg	cggagagagg	cggcgaagtc	420
ggctggttcg	gctgcctgct	ggtgttggtg	gcgggcgcgg	gcttttgtgc	cgctatgcgt	480
ccgacgcaaa	ggctgattgc	acgcacgcgc	gcaccggcat	tcacatctgt	ttccattgcc	540

gccgcacgtg	tgatgtgcct	gccgttttcg	cttgcttttg	cgcaaagtta	taccgtggac	600
tgagcgctcg	gaatggtatt	gtcgtgctg	tatttgggcg	tggggtgcag	ctggtacgcc	660
tattggctgt	ggaacaaggg	gatgagccgt	gttcctgcca	acgtttcggg	actgttgatt	720
tcgctcgaac	cgcgtcgcgc	cgtgctgctg	gcggttttga	ttttgggcga	acacctgtcg	780
cccgtgtccg	tcttgggcgt	gtttgtcgtc	atcgccgcca	ccttggttgc	cggccggctg	840
tcgcatcaaa	aataa					855

<210> 246

<211> 284

<212> PRT

<213> Neisseria meningitidis

<400> 246

Met	Phe	Tyr	Gln	Ile	Leu	Ala	Leu	Ile	Ile	Trp	Ser	Ser	Ser	Phe	Ile
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Ala	Ala	Lys	Tyr	Val	Tyr	Gly	Gly	Ile	Asp	Pro	Ala	Leu	Met	Val	Gly
			20					25					30		

Val	Arg	Leu	Leu	Ile	Ala	Ala	Leu	Pro	Ala	Leu	Pro	Ala	Cys	Arg	Arg
		35					40					45			

His	Val	Gly	Lys	Ile	Pro	Arg	Glu	Glu	Trp	Lys	Pro	Leu	Leu	Ile	Val
	50					55					60				

Ser	Phe	Val	Asn	Tyr	Val	Leu	Thr	Leu	Leu	Leu	Gln	Phe	Val	Gly	Leu
65				70					75					80	

Lys	Tyr	Thr	Ser	Ala	Ala	Ser	Ala	Ser	Val	Ile	Val	Gly	Leu	Glu	Pro
				85					90					95	

Leu	Leu	Met	Val	Phe	Val	Gly	His	Phe	Phe	Phe	Asn	Asp	Lys	Ala	Arg
			100					105					110		

Ala	Tyr	His	Trp	Ile	Cys	Gly	Ala	Ala	Ala	Phe	Ala	Gly	Val	Ala	Leu
		115					120					125			

Leu	Met	Ala	Gly	Gly	Ala	Glu	Gly	Gly	Glu	Val	Gly	Trp	Phe	Gly	
	130					135				140					

Cys	Leu	Leu	Val	Leu	Leu	Ala	Gly	Ala	Gly	Phe	Cys	Ala	Ala	Met	Arg
145						150				155				160	

Pro	Thr	Gln	Arg	Leu	Ile	Ala	Arg	Ile	Gly	Ala	Pro	Ala	Phe	Thr	Ser
				165					170					175	

Val	Ser	Ile	Ala	Ala	Ala	Ser	Leu	Met	Cys	Leu	Pro	Phe	Ser	Leu	Ala
			180					185					190		

Leu Ala Gln Ser Tyr Thr Val Asp Trp Ser Val Gly Met Val Leu Ser
195 200 205

Leu Leu Tyr Leu Gly Val Gly Cys Ser Trp Tyr Ala Tyr Trp Leu Trp
210 215 220

Asn Lys Gly Met Ser Arg Val Pro Ala Asn Val Ser Gly Leu Leu Ile

225 230 235 240

Ser Leu Glu Pro Val Val Gly Val Leu Leu Ala Val Leu Ile Leu Gly
245 250 255

Glu His Leu Ser Pro Val Ser Val Leu Gly Val Phe Val Val Ile Ala
260 265 270

Ala Thr Leu Val Ala Gly Arg Leu Ser His Gln Lys
275 280

<210> 247
<211> 876
<212> DNA
<213> Neisseria gonorrhoeae

<400> 247
atgttttacc aaatccttgc cctgattatc tggggcagct cgttttattgc cgccaaatat 60
gtctatggcg gcatcgatcc cgcattgatg gtcggcggtgc gcctgctgat tgccgcgctg 120
cctgcactgc ccgcctgccg ccgtcatgtc ggcaagattc cgcgtgagga atggaagccg 180
ttgctgattg tgcgttgcgt caactatgtg ctgaccctgc tgccttcagtt tgcggggttg 240
aaatacactt ccgccgccag cgcacgggtc attgtcggac tcgagccgct gctgatggtg 300
tttgtcggac actttttctt caacgacaaa gcgcgtgcct accactggat atgcggcgcg 360
gcggcatttg ccggtgtcgc gctgctgatg gcgggcggtg cgggaagaggg cggcgaagtc 420
ggctgggtcg gctgcctgct ggtgttggtg gcgggcgcgg gcttttgtgc cgctatgcgt 480
ccgacgcaaa ggctgattgc ccgcacggc gcaccggcat tcacatctgt ttccattgcc 540
gcgcacgtg tgatgtgcct gccgttttcg cttgcttttg cgcaaagtta taccgtggac 600
tggagcgtcg ggatggtatt gtcgctggtg tatttgggtt tggggtgcgg ctggtacgcc 660
tattggctgt ggaacaaggg gatgagccgt gttcctgcc aacgcgtcggg actggtgatt 720
tcgctcgaac ccgtcgtcgg cgtgctggtg gcggttttga ttttgggcga acatttatcg 780
cccggtgccc ccttgggcgt gtttgcgtc atcgccgcca ctttcgccgc cggccggctg 840
tcgcgcaggg acgcgcaaaa cggcaatgcc gtctga 876

<210> 248
<211> 291
<212> PRT
<213> Neisseria gonorrhoeae

<400> 248
Met Phe Tyr Gln Ile Leu Ala Leu Ile Ile Trp Gly Ser Ser Phe Ile
1 5 10 15

Ala Ala Lys Tyr Val Tyr Gly Gly Ile Asp Pro Ala Leu Met Val Gly
20 25 30

Val Arg Leu Leu Ile Ala Ala Leu Pro Ala Leu Pro Ala Cys Arg Arg
35 40 45

His Val Gly Lys Ile Pro Arg Glu Glu Trp Lys Pro Leu Leu Ile Val
50 55 60

Ser Phe Val Asn Tyr Val Leu Thr Leu Leu Leu Gln Phe Val Gly Leu
65 70 75 80

Lys Tyr Thr Ser Ala Ala Ser Ala Ser Val Ile Val Gly Leu Glu Pro
85 90 95

Leu Leu Met Val Phe Val Gly His Phe Phe Phe Asn Asp Lys Ala Arg
100 105 110

Ala Tyr His Trp Ile Cys Gly Ala Ala Ala Phe Ala Gly Val Ala Leu
115 120 125

Leu Met Ala Gly Gly Ala Glu Glu Gly Gly Glu Val Gly Trp Phe Gly
130 135 140

Cys Leu Leu Val Leu Leu Ala Gly Ala Gly Phe Cys Ala Ala Met Arg
145 150 155 160

Pro Thr Gln Arg Leu Ile Ala Arg Ile Gly Ala Pro Ala Phe Thr Ser
165 170 175

Val Ser Ile Ala Ala Ala Ser Leu Met Cys Leu Pro Phe Ser Leu Ala
180 185 190

Leu Ala Gln Ser Tyr Thr Val Asp Trp Ser Val Gly Met Val Leu Ser
195 200 205

Leu Leu Tyr Leu Gly Leu Gly Cys Gly Trp Tyr Ala Tyr Trp Leu Trp
210 215 220

Asn Lys Gly Met Ser Arg Val Pro Ala Asn Ala Ser Gly Leu Leu Ile
225 230 235 240

Ser Leu Glu Pro Val Val Gly Val Leu Leu Ala Val Leu Ile Leu Gly
245 250 255

Glu His Leu Ser Pro Val Ser Ala Leu Gly Val Phe Val Val Ile Ala
260 265 270

Ala Thr Phe Ala Ala Gly Arg Leu Ser Arg Arg Asp Ala Gln Asn Gly
275 280 285

Asn Ala Val
290

<210> 249
<211> 1182
<212> DNA
<213> Neisseria meningitidis

<400> 249
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gcggcaaccg gcagcaccag ttcgctggcg gattatttct ggtggattgt tgcgttcacg 120

gcaatgctgc	tgctgggtgtt	gtccgccggtt	ttggcacggtt	atgtcatatt	gctggttga	180
gacaggcgcg	acggcggtatt	cggttcgcta	srtygccaaa	gsgcctgkks	tgggatgttt	240
acgctgggtg	ccgkactgcc	cggcgtgttt	ctgttcggct	ttcccgcaca	gttcatcaac	300
ggcacgatta	attcgtgggtt	cggaacgat	acccacgagg	cgcttgaacg	cagcctcaat	360
ttgagcaagt	ccgcattgaa	tttggcggca	gacaacgccc	tcggcaacgc	cgtccccgtg	420
cagatagacc	tcacgggcgc	ggcttccttg	cccggggata	tgggcagggt	gctggaacat	480
tacgccggca	gcggttttgc	ccagcttgcc	ctgtacaayk	scgcaagcgg	caaaatcgaa	540
aaaagcatca	acccgcacaa	gctcgatcag	ccgtttccag	gtaaggcgcg	ttgggaaaaa	600
atccaacggg	cggttccggt	cagggatttg	gaaagcatag	gcggcgtatt	gtacgcgcag	660

ggctggctgt	cggcgggtac	gcacwacggg	cgcgattacg	ccttgttttt	ccgtcagccg	720
gttcccaaag	gcgtggcaga	ggatgccgty	ttaatcgaaa	aggcaagggc	gaaatatgct	780
gagttgagtt	acagcaaaaa	aggtttgcag	acctttttcc	tggcaaccct	gctgattgcc	840
tcgctgctgt	cgatTTTTct	tgcactggtc	atggcactgt	atttcgcccg	ccgtttcgtc	900
gaacccgtcc	tatcgcttgc	cgagggggcg	aaggcgggtg	cgcaaggcga	tttcagccag	960
acgcgccccg	tgttgcgcaa	cgacgagttc	ggacgcttga	ccargttgtt	caaccacatg	1020
accgagcagc	tttccatcgc	caaagatgca	gacgagcgca	accgccggcg	cgaggaagcc	1080
gccaggcatt	atcttgaatg	cgtgttggag	gggctgacca	cgggcgtggt	ggtgtttgac	1140
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<210> 250
 <211> 394
 <212> PRT
 <213> *Neisseria meningitidis*

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 <223> Xaa= any amino acid

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 <222> (70)..(71)
 <223> Xaa= any amino acid

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 <222> (74)..(74)
 <223> Xaa= any amino acid

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 <222> (76)..(78)
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 <223> Xaa= any amino acid

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 <223> Xaa= any amino acid

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<221> misc_feature
 <222> (335)..(335)
 <223> Xaa= any amino acid

<400> 250

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Xaa Gly Leu Thr Ala Ala Thr Gly Ser Thr Ser Ser Leu Ala Asp Tyr
 20 25 30

Phe Trp Trp Ile Val Ala Phe Ser Ala Met Leu Leu Leu Val Leu Ser
 35 40 45

Ala Val Leu Ala Arg Tyr Val Ile Leu Leu Leu Lys Asp Arg Arg Asp
 50 55 60

Gly Val Phe Gly Ser Xaa Xaa Ala Lys Xaa Pro Xaa Xaa Xaa Met Phe
 65 70 75 80

Thr Leu Val Ala Xaa Leu Pro Gly Val Phe Leu Phe Gly Phe Pro Ala
 85 90 95

Gln Phe Ile Asn Gly Thr Ile Asn Ser Trp Phe Gly Asn Asp Thr His
 100 105 110

Glu Ala Leu Glu Arg Ser Leu Asn Leu Ser Lys Ser Ala Leu Asn Leu
 115 120 125

Ala Ala Asp Asn Ala Leu Gly Asn Ala Val Pro Val Gln Ile Asp Leu
 130 135 140

Ile Gly Ala Ala Ser Leu Pro Gly Asp Met Gly Arg Val Leu Glu His
 145 150 155 160

Tyr Ala Gly Ser Gly Phe Ala Gln Leu Ala Leu Tyr Asn Xaa Ala Ser
 165 170 175

Gly Lys Ile Glu Lys Ser Ile Asn Pro His Lys Leu Asp Gln Pro Phe
 180 185 190

Pro Gly Lys Ala Arg Trp Glu Lys Ile Gln Arg Ala Gly Ser Val Arg
 195 200 205

Asp Leu Glu Ser Ile Gly Gly Val Leu Tyr Ala Gln Gly Trp Leu Ser

210	215	220
Ala Gly Thr His Xaa Gly Arg Asp Tyr Ala Leu Phe Phe Arg Gln Pro		
225	230	235 240
Val Pro Lys Gly Val Ala Glu Asp Ala Val Leu Ile Glu Lys Ala Arg		
	245	250 255
Ala Lys Tyr Ala Glu Leu Ser Tyr Ser Lys Lys Gly Leu Gln Thr Phe		
	260	265 270
Phe Leu Ala Thr Leu Leu Ile Ala Ser Leu Leu Ser Ile Phe Leu Ala		
	275	280 285
Leu Val Met Ala Leu Tyr Phe Ala Arg Arg Phe Val Glu Pro Val Leu		
	290	295 300
Ser Leu Ala Glu Gly Ala Lys Ala Val Ala Gln Gly Asp Phe Ser Gln		
305	310	315 320
Thr Arg Pro Val Leu Arg Asn Asp Glu Phe Gly Arg Leu Thr Xaa Leu		
	325	330 335
Phe Asn His Met Thr Glu Gln Leu Ser Ile Ala Lys Asp Ala Asp Glu		
	340	345 350
Arg Asn Arg Arg Arg Glu Glu Ala Ala Arg His Tyr Leu Glu Cys Val		
	355	360 365
Leu Glu Gly Leu Thr Thr Gly Val Val Val Phe Asp Glu Gln Gly Cys		
	370	375 380
Leu Lys Thr Phe Asn Lys Ala Ala Gly Thr		
385	390	

<210> 251
 <211> 2121
 <212> DNA
 <213> Neisseria meningitidis

<400> 251	
atgcgcgctt ttctaccgat cgcagccata tgcgcgctcg tctgttgta cggactgacg	60
gcggcaaccg gcagcaccag ttcgctggcg gattatttct ggtggattgt tgcgttcagc	120
gcaatgctgc tgetggtgtt gtccgcgctt ttggcacgtt atgtcatatt gctgttgaaa	180
gacaggcgcg acggcgctatt cggttcgcag attgccaaac gcctttctgg gatgtttacg	240
ctggttgccg tactgcccgg cgtgtttctg ttcggcgctt ccgcacagtt catcaacggc	300
acgattaatt cgtggttcgg caacgatacc cagcaggcgc ttgaacgcag cctcaatttg	360
agcaagtccg cattgaattt ggccgagac aacgccctcg gcaacgccgt ccccgctgcag	420
atagacctca tcggcgccgg ttccctgccc ggggatatgg gcagggtgct ggaacattac	480
gccggcagcg gttttgccca gcttgccctg tacaatgccg caagcggcaa aatcgaaaaa	540
agcatcaacc cgcacaagct cgatcagccg tttccaggta aggcgcgctt ggaaaaaatc	600
caacgggcgg gttcggctcag ggatttggaa agcataggcg gcgtattgta cgcgcagggc	660
tggtgtcgg cgggtacgca caacgggcgc gattacgcct tgtttttccg tcagccgggt	720
ccaaaggcg tggcagagga tgccgtctta atcgaaaagg caaggcgcaa atatgctgag	780
ttgagttaca gcaaaaaagg tttgcagacc tttttcctgg caaccctgct gattgcctcg	840

ctgctgtcga	tttttcttgc	actggtcatg	gcactgtatt	tcgcccgcgc	tttcgtcgaa	900
cccgtcctat	cgcttgccga	gggggcgaag	gcggtggcgc	aaggcgattt	cagccagacg	960
cgccccgtgt	tgcgcaacga	cgagttcgga	cgcttgacca	agttgttcaa	ccacatgacc	1020
gagcagcttt	ccatcgccaa	agaagcagac	gagcgcaacc	gccggcgcga	ggaagccgcc	1080
aggcattatc	ttgaatgcgt	gttggagggg	ctgaccacgg	gcgtgggtgt	gtttgacgaa	1140
caaggctgtc	tgaaaacctt	caacaaagcg	gcggaacaga	ttttggggat	gccgcttacc	1200
ccccgtggg	gcagcagccg	gcacggttgg	cacggcgttt	cggcgcagca	gtccctgctt	1260
gccgaagtgt	ttgccgccat	cggcgcggcg	gcaggtacgg	acaaaccggg	ccatgtgaaa	1320
tatgccgcgc	cggacgatgc	caaaatcctg	ctgggcaagg	caaccgtcct	gcccgaagac	1380
aacggcaacg	gcgtggtaat	ggtgattgac	gacatcaccc	ttttgatata	cgcgcaaaaa	1440
gaagccgcgt	ggggcggaag	ggcggaagcg	ctggcacacg	aaatccgcaa	tccgctcacg	1500
cccatccagc	tttccgccga	acggctggcg	tggaaattgg	gcgggaagct	ggatgagcag	1560

gatgcgcaaa	tccctgacgc	ttcgaccgac	accatcgtea	aacaggtggc	ggcattgaag	1620
gaaatggtcg	aagcattccg	caattatgcg	cgttcccctt	cgctcaaatt	ggaaaatcag	1680
gatttgaacg	ccttaatcgg	cgatgtgttg	gcattgtatg	aagccgggtcc	gtgccggttt	1740
gcggcggagc	ttgccggcga	accgctgacg	gtggcggcgg	atacgaccgc	catgcggcag	1800
gtgctgcaca	atattttcaa	aaatgccgcc	gaagcggcgg	aagaagccga	tgtgcccgaa	1860
gtcagggtaa	aatcggaaac	agggcaggga	ggtcggattg	tccctgacgg	ttgcgacaac	1920
ggcaaagggt	tcggcaggga	aatgctgcac	aacgccttcg	agccgtatgt	aacggacaaa	1980
ccggcgggaa	cgggattggg	tctgcctgtg	gtgaaaaaaa	tcattgaaga	acacggcggc	2040
cgcacagccc	tgagcaatca	ggatgcgggt	ggcgcgtgtg	tcagaatcat	cttgccaaaa	2100
acggtaaaaa	cttatgcgta	g				2121

<210> 252
 <211> 706
 <212> PRT
 <213> Neisseria meningitidis

<400> 252
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 Tyr Gly Leu Thr Ala Ala Thr Gly Ser Thr Ser Ser Leu Ala Asp Tyr
 20 25 30
 Phe Trp Trp Ile Val Ala Phe Ser Ala Met Leu Leu Leu Val Leu Ser
 35 40 45
 Ala Val Leu Ala Arg Tyr Val Ile Leu Leu Leu Lys Asp Arg Arg Asp
 50 55 60
 Gly Val Phe Gly Ser Gln Ile Ala Lys Arg Leu Ser Gly Met Phe Thr
 65 70 75 80
 Leu Val Ala Val Leu Pro Gly Val Phe Leu Phe Gly Val Ser Ala Gln
 85 90 95
 Phe Ile Asn Gly Thr Ile Asn Ser Trp Phe Gly Asn Asp Thr His Glu
 100 105 110
 Ala Leu Glu Arg Ser Leu Asn Leu Ser Lys Ser Ala Leu Asn Leu Ala
 115 120 125
 Ala Asp Asn Ala Leu Gly Asn Ala Val Pro Val Gln Ile Asp Leu Ile
 130 135 140

Gly Ala Ala Ser Leu Pro Gly Asp Met Gly Arg Val Leu Glu His Tyr
 145 150 155 160
 Ala Gly Ser Gly Phe Ala Gln Leu Ala Leu Tyr Asn Ala Ala Ser Gly
 165 170 175
 Lys Ile Glu Lys Ser Ile Asn Pro His Lys Leu Asp Gln Pro Phe Pro
 180 185 190
 Gly Lys Ala Arg Trp Glu Lys Ile Gln Arg Ala Gly Ser Val Arg Asp
 195 200 205
 Leu Glu Ser Ile Gly Gly Val Leu Tyr Ala Gln Gly Trp Leu Ser Ala
 210 215 220
 Gly Thr His Asn Gly Arg Asp Tyr Ala Leu Phe Phe Arg Gln Pro Val
 225 230 235 240
 Pro Lys Gly Val Ala Glu Asp Ala Val Leu Ile Glu Lys Ala Arg Ala
 245 250 255
 Lys Tyr Ala Glu Leu Ser Tyr Ser Lys Lys Gly Leu Gln Thr Phe Phe
 260 265 270
 Leu Ala Thr Leu Leu Ile Ala Ser Leu Leu Ser Ile Phe Leu Ala Leu
 275 280 285
 Val Met Ala Leu Tyr Phe Ala Arg Arg Phe Val Glu Pro Val Leu Ser
 290 295 300
 Leu Ala Glu Gly Ala Lys Ala Val Ala Gln Gly Asp Phe Ser Gln Thr
 305 310 315 320
 Arg Pro Val Leu Arg Asn Asp Glu Phe Gly Arg Leu Thr Lys Leu Phe
 325 330 335
 Asn His Met Thr Glu Gln Leu Ser Ile Ala Lys Glu Ala Asp Glu Arg
 340 345 350
 Asn Arg Arg Arg Glu Glu Ala Ala Arg His Tyr Leu Glu Cys Val Leu
 355 360 365
 Glu Gly Leu Thr Thr Gly Val Val Val Phe Asp Glu Gln Gly Cys Leu
 370 375 380
 Lys Thr Phe Asn Lys Ala Ala Glu Gln Ile Leu Gly Met Pro Leu Thr
 385 390 395 400
 Pro Leu Trp Gly Ser Ser Arg His Gly Trp His Gly Val Ser Ala Gln
 405 410 415
 Gln Ser Leu Leu Ala Glu Val Phe Ala Ala Ile Gly Ala Ala Ala Gly
 420 425 430

Thr Asp Lys Pro Val His Val Lys Tyr Ala Ala Pro Asp Asp Ala Lys
 435 440 445

Ile Leu Leu Gly Lys Ala Thr Val Leu Pro Glu Asp Asn Gly Asn Gly
 450 455 460

Val Val Met Val Ile Asp Asp Ile Thr Val Leu Ile His Ala Gln Lys
 465 470 475 480

Glu Ala Ala Trp Gly Glu Val Ala Lys Arg Leu Ala His Glu Ile Arg
 485 490 495

Asn Pro Leu Thr Pro Ile Gln Leu Ser Ala Glu Arg Leu Ala Trp Lys
 500 505 510

Leu Gly Gly Lys Leu Asp Glu Gln Asp Ala Gln Ile Leu Thr Arg Ser
 515 520 525

Thr Asp Thr Ile Val Lys Gln Val Ala Ala Leu Lys Glu Met Val Glu
 530 535 540

Ala Phe Arg Asn Tyr Ala Arg Ser Pro Ser Leu Lys Leu Glu Asn Gln
 545 550 555 560

Asp Leu Asn Ala Leu Ile Gly Asp Val Leu Ala Leu Tyr Glu Ala Gly
 565 570 575

Pro Cys Arg Phe Ala Ala Glu Leu Ala Gly Glu Pro Leu Thr Val Ala
 580 585 590

Ala Asp Thr Thr Ala Met Arg Gln Val Leu His Asn Ile Phe Lys Asn
 595 600 605

Ala Ala Glu Ala Ala Glu Glu Ala Asp Val Pro Glu Val Arg Val Lys
 610 615 620

Ser Glu Thr Gly Gln Asp Gly Arg Ile Val Leu Thr Val Cys Asp Asn
 625 630 635 640

Gly Lys Gly Phe Gly Arg Glu Met Leu His Asn Ala Phe Glu Pro Tyr
 645 650 655

Val Thr Asp Lys Pro Ala Gly Thr Gly Leu Gly Leu Pro Val Val Lys
 660 665 670

Lys Ile Ile Glu Glu His Gly Gly Arg Ile Ser Leu Ser Asn Gln Asp
 675 680 685

Ala Gly Gly Ala Cys Val Arg Ile Ile Leu Pro Lys Thr Val Lys Thr
 690 695 700

Tyr Ala
 705

<210> 253
 <211> 2121

<212> DNA
<213> Neisseria meningitidis

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<222> (451)..(451)
<223> N= Unknown

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<223> N= Unknown

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<222> (657)..(657)
<223> N= Unknown

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<222> (674)..(675)
<223> N= Unknown

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<222> (769)..(769)
<223> N= Unknown

<220>
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<223> N= Unknown

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<223> N= Unknown

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<222> (778)..(778)
<223> N= Unknown

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<222> (819)..(819)
<223> N= Unknown

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<222> (840)..(840)

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<220>

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<222> (1384)..(1384)

<223> N= Unknown

<220>

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<223> N= Unknown

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<223> N= Unknown

<400> 253

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gcaatgctgc	tgctggtggt	gtccgccgtt	ttggcacgtt	atgtcatatt	gctgttgaaa	180
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gtcagggtaa	aatcggaagc	ggggcaggac	ggacggattg	tcctgacagt	ttgcgacaac	1920
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ccggctggaa	cgggattgng	actgcccggtg	gtgaaaaaaaa	tcattgaaga	acacggcggc	2040
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 <213> *Neisseria meningitidis*

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 35 40 45
 Ala Val Leu Ala Arg Tyr Val Ile Leu Leu Leu Lys Asp Arg Arg Asp
 50 55 60
 Gly Val Phe Gly Ser Gln Ile Ala Lys Arg Leu Ser Gly Met Phe Thr
 65 70 75 80
 Leu Val Ala Val Leu Pro Gly Val Phe Leu Phe Gly Val Ser Ala Gln
 85 90 95

Phe Ile Asn Gly Thr Ile Asn Ser Trp Phe Gly Asn Asp Thr His Glu
100 105 110
Ala Leu Glu Arg Ser Leu Asn Leu Ser Lys Ser Ala Leu Asn Leu Ala
115 120 125
Ala Asp Asn Ala Leu Gly Asn Ala Ile Pro Val Gln Ile Asp Xaa Ile
130 135 140
Gly Ala Ala Ser Leu Pro Xaa Asp Met Gly Arg Val Leu Glu His Tyr
145 150 155 160
Ala Gly Ser Gly Phe Ala Gln Leu Ala Leu Tyr Asn Ala Ala Ser Gly
165 170 175
Lys Ile Glu Lys Ser Ile Asn Pro His Lys Leu Asp Gln Pro Phe Pro
180 185 190
Gly Lys Ala Arg Trp Glu Lys Ile Gln Gln Ala Gly Ser Val Arg Asp
195 200 205
Xaa Glu Ser Ile Gly Gly Val Leu Tyr Ala Xaa Gly Trp Leu Ser Ala
210 215 220
Xaa Thr His Asn Gly Arg Asp Tyr Ala Leu Phe Phe Arg Gln Pro Val
225 230 235 240
Pro Lys Gly Val Ala Glu Asp Ala Val Leu Ile Glu Lys Ala Arg Ala
245 250 255
Xaa Xaa Xaa Xaa Leu Ser Tyr Ser Lys Lys Gly Leu Gln Thr Phe Phe
260 265 270
Leu Ala Thr Leu Leu Ile Ala Ser Leu Leu Ser Ile Phe Leu Ala Leu
275 280 285
Val Met Ala Leu Tyr Phe Ala Arg Arg Phe Val Glu Pro Val Leu Ser
290 295 300
Leu Ala Glu Gly Ala Lys Ala Val Ala Gln Gly Asp Phe Ser Gln Thr
305 310 315 320
Arg Pro Val Leu Arg Asn Asp Glu Phe Gly Arg Leu Thr Lys Leu Phe
325 330 335
Asn His Met Thr Glu Gln Leu Ser Ile Ala Lys Glu Ala Asp Glu Arg
340 345 350
Asn Arg Arg Arg Glu Glu Ala Ala Arg His Tyr Leu Glu Cys Val Leu
355 360 365
Glu Gly Leu Thr Thr Gly Val Val Val Phe Asp Glu Gln Gly Cys Leu
370 375 380
Lys Thr Phe Asn Lys Ala Ala Glu Gln Ile Leu Gly Met Pro Leu Thr

385		390		395		400
Pro Leu Trp Gly	Ser Ser Arg His Gly Trp His Gly Val Ser Ala Gln					
	405			410		415
Gln Ser Leu Leu Ala Glu Val Phe Ala Ala Ile Gly Ala Ala Ala Gly						
	420			425		430
Thr Asp Lys Pro Val His Val Lys Tyr Ala Ala Pro Asp Asp Ala Lys						
	435			440		445
Ile Leu Leu Gly Lys Ala Thr Val Leu Pro Glu Asp Asn Xaa Asn Gly						
	450			455		460
Val Val Met Val Ile Asp Asp Ile Thr Val Leu Ile His Ala Gln Lys						
	465			470		475 480
Glu Ala Ala Trp Gly Glu Val Ala Lys Arg Leu Ala His Glu Ile Arg						
	485			490		495
Asn Pro Leu Thr Pro Ile Gln Leu Ser Ala Glu Arg Leu Ala Trp Lys						
	500			505		510
Leu Gly Gly Lys Leu Asp Glu Xaa Asp Ala Gln Ile Leu Thr Arg Ser						
	515			520		525
Thr Asp Thr Ile Ile Lys Gln Val Ala Ala Leu Lys Glu Met Val Glu						
	530			535		540
Ala Phe Arg Asn Tyr Xaa Arg Ser Pro Ser Xaa Gln Leu Glu Asn Gln						
	545			550		555 560
Asp Leu Asn Ala Leu Ile Gly Asp Val Leu Ala Leu Tyr Glu Ala Gly						
	565			570		575
Pro Cys Arg Phe Ala Ala Glu Leu Ala Gly Glu Pro Leu Met Met Ala						
	580			585		590
Ala Asp Thr Thr Ala Met Arg Gln Val Leu His Asn Ile Phe Lys Asn						
	595			600		605
Ala Ala Glu Ala Ala Glu Glu Ala Asp Val Pro Glu Val Arg Val Lys						
	610			615		620
Ser Glu Ala Gly Gln Asp Gly Arg Ile Val Leu Thr Val Cys Asp Asn						
	625			630		635 640
Gly Lys Gly Phe Gly Arg Glu Met Leu His Asn Ala Phe Glu Pro Tyr						
	645			650		655
Val Thr Asp Lys Pro Ala Gly Thr Gly Leu Xaa Leu Pro Val Val Lys						
	660			665		670
Lys Ile Ile Glu Glu His Gly Gly Xaa Ile Ser Leu Ser Asn Gln Asp						
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Tyr Ala
705

<210> 255
<211> 8
<212> DNA
<213> Neisseria gonorrhoeae

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<223> N= Unknown

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<210> 256

<211> 400
<212> PRT
<213> Neisseria gonorrhoeae

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Tyr Gly Leu Thr Ala Ala Thr Gly Ser Thr Ser Ser Leu Ala Asp Tyr
20 25 30

Phe Trp Trp Ile Val Ser Phe Ser Ala Met Leu Leu Leu Val Leu Ser
35 40 45

Ala Val Leu Ala Arg Tyr Val Ile Leu Leu Leu Lys Asp Arg Arg Asn
50 55 60

Gly Val Phe Gly Ser Gln Ile Ala Lys Arg Leu Ser Gly Met Phe Thr
65 70 75 80

Leu Val Ala Val Leu Pro Gly Leu Phe Leu Phe Gly Ile Ser Ala Gln
85 90 95

Phe Ile Asn Gly Thr Ile Asn Ser Trp Phe Gly Asn Asp Thr His Glu
100 105 110

Ala Leu Glu Arg Ser Leu Asn Leu Ser Lys Ser Ala Leu Asp Leu Ala
115 120 125

Ala Asp Asn Ala Val Ser Asn Ala Val Pro Val Gln Ile Asp Leu Ile
130 135 140

Gly Thr Ala Ser Leu Ser Gly Asn Met Gly Ser Val Leu Glu His Tyr
145 150 155 160

Ala Gly Ser Gly Phe Ala Gln Leu Ala Leu Tyr Asn Ala Ala Ser Gly
 165 170 175
 Lys Ile Glu Lys Ser Ile Asn Pro His Gln Phe Asp Gln Pro Leu Pro
 180 185 190
 Asp Lys Glu His Trp Glu Gln Ile Gln Gln Thr Gly Ser Val Arg Ser
 195 200 205
 Leu Glu Ser Ile Gly Gly Val Leu Tyr Ala Gln Gly Trp Leu Ser Ala
 210 215 220
 Gly Thr His Asn Gly Arg Asp Tyr Ala Leu Phe Phe Arg Gln Pro Ile
 225 230 235 240
 Pro Glu Asn Val Ala Gln Asp Ala Val Leu Ile Glu Lys Ala Arg Ala
 245 250 255
 Lys Tyr Ala Glu Leu Ser Tyr Ser Lys Lys Gly Leu Gln Thr Phe Phe
 260 265 270
 Leu Val Thr Leu Leu Ile Ala Ser Leu Leu Ser Ile Phe Leu Ala Leu
 275 280 285
 Val Met Ala Leu Tyr Phe Ala Arg Arg Phe Val Glu Pro Ile Leu Ser
 290 295 300
 Leu Ala Glu Gly Ala Lys Ala Val Ala Gln Gly Asp Phe Ser Gln Thr
 305 310 315 320
 Arg Pro Val Leu Arg Asn Asp Glu Phe Gly Arg Leu Thr Lys Leu Phe
 325 330 335
 Asn His Met Thr Glu Gln Leu Ser Ile Ala Lys Glu Ala Asp Glu Arg
 340 345 350
 Asn Arg Arg Arg Glu Glu Ala Ala Arg His Tyr Leu Glu Cys Val Leu
 355 360 365
 Asp Gly Leu Thr Thr Gly Val Val Val Ser Tyr Pro Leu Ser Cys Cys
 370 375 380
 Arg Thr Ala Val Phe Ser Thr Cys His Ser Ser Pro Leu Ser Tyr Phe
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<210> 257

<211> 2121

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 257

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gcaatgctgc	tgctggtggt	gtccgcccgt	ttggcacggt	atgtcatatt	gctgttgaaa	180

gacaggcgca	acggcggtgtt	cggttcgcag	attgccaaac	gcctttccgg	gatgttcacg	240
ctgggtcgccg	tactgcccgg	cttgttcctg	ttcggcattt	ccgcgcagtt	tatcaacggc	300
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atagacctca	tcggcaccgc	ctccctgtcg	ggcaatatgg	gcagtgtgct	ggaacactac	480
gccggcgagcg	gttttgccca	gcttgccctg	tacaatgccg	caagcgggaa	aatcgaaaaa	540
agcatcaatc	cgcaccaatt	cgaccagccg	cttcccgcga	aagaacattg	ggaacagatt	600
cagcagaccg	gttcgggttcg	gagtttgga	agcataggcg	gcgtattgta	cgcgagggga	660
tggttggtcg	caggtagcga	caacggggcg	gattacgcgc	tggtcttcgg	ccagccgatt	720
cccgaataatg	tggcacagga	tgccgttctg	attgaaaagg	cgcgggcgaa	atatgccgaa	780
ttgagttaca	gcaaaaaagg	tttgacagacc	ttttttctgg	taaccctgct	gattgcctcg	840
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cccattctgt	cgcttgccga	gggcgcaaag	gcggtggcgc	aggggtgattt	cagccagacg	960
cgccccgtat	tgcgcaacga	cgagttcgga	cgtttgacca	agctgttcaa	ccatatgacc	1020
gagcagcttt	ccatcgccaa	agaagcagac	gaacgcaacc	gccggcgcgga	ggaagccggc	1080
cgctcactacc	tcgagtgcgt	gttggatggg	ttgactaccg	gtgtgggtgg	gtttgacgaa	1140
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cccctgtggg	gcagcagccg	gcacggttgg	cacggcggtt	cggcgcagca	gtccctgctt	1260
gccgaagtgt	ttgccgccat	cggtgcggcg	gcaggtacgg	acaaaccggg	ccaggtggaa	1320
tatgccgcgc	cggacgatgc	caaaatcctg	ctgggcaagg	cgacgggtatt	gcccgaagac	1380
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gaagccgcgt	ggggtgaagt	ggcgaagcgg	ctggcacacg	aaatccgcaa	tccgctcacg	1500
cccatccagc	tttcgcgcga	acggctggcg	tggaaattgg	gcgggaagct	ggacgatcag	1560

gacgcgcaaa	tcctgacgcg	ttcgaccgac	accatcatca	aacaggtggc	ggcgttaaaa	1620
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gtgctgcaca	atattttcaa	aaatgccgcg	gaagcggcgg	aagaagccga	tatgcccgaa	1860
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ggcaagggat	tcggcaagga	aatgctgcac	aatgctttcg	agccgtatgt	gacggataag	1980
ccggcgggaa	cgggactggg	tctgcctgta	gtgaaaaaaa	tcattggaga	acacggcggc	2040
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acggtagaaa	cttatgcgta	g				2121

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 <211> 706
 <212> PRT
 <213> Neisseria gonorrhoeae

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 20 25 30
 Phe Trp Trp Ile Val Ser Phe Ser Ala Met Leu Leu Leu Val Leu Ser
 35 40 45
 Ala Val Leu Ala Arg Tyr Val Ile Leu Leu Leu Lys Asp Arg Arg Asn
 50 55 60
 Gly Val Phe Gly Ser Gln Ile Ala Lys Arg Leu Ser Gly Met Phe Thr
 65 70 75 80

Leu Val Ala Val Leu Pro Gly Leu Phe Leu Phe Gly Ile Ser Ala Gln
 85 90 95
 Phe Ile Asn Gly Thr Ile Asn Ser Trp Phe Gly Asn Asp Thr His Glu
 100 105 110
 Ala Leu Glu Arg Ser Leu Asn Leu Ser Lys Ser Ala Leu Asp Leu Ala
 115 120 125
 Ala Asp Asn Ala Val Ser Asn Ala Val Pro Val Gln Ile Asp Leu Ile
 130 135 140
 Gly Thr Ala Ser Leu Ser Gly Asn Met Gly Ser Val Leu Glu His Tyr
 145 150 155 160
 Ala Gly Ser Gly Phe Ala Gln Leu Ala Leu Tyr Asn Ala Ala Ser Gly
 165 170 175
 Lys Ile Glu Lys Ser Ile Asn Pro His Gln Phe Asp Gln Pro Leu Pro
 180 185 190
 Asp Lys Glu His Trp Glu Gln Ile Gln Gln Thr Gly Ser Val Arg Ser
 195 200 205

 Leu Glu Ser Ile Gly Gly Val Leu Tyr Ala Gln Gly Trp Leu Ser Ala
 210 215 220
 Gly Thr His Asn Gly Arg Asp Tyr Ala Leu Phe Phe Arg Gln Pro Ile
 225 230 235 240
 Pro Glu Asn Val Ala Gln Asp Ala Val Leu Ile Glu Lys Ala Arg Ala
 245 250 255
 Lys Tyr Ala Glu Leu Ser Tyr Ser Lys Lys Gly Leu Gln Thr Phe Phe
 260 265 270
 Leu Val Thr Leu Leu Ile Ala Ser Leu Leu Ser Ile Phe Leu Ala Leu
 275 280 285
 Val Met Ala Leu Tyr Phe Ala Arg Arg Phe Val Glu Pro Ile Leu Ser
 290 295 300
 Leu Ala Glu Gly Ala Lys Ala Val Ala Gln Gly Asp Phe Ser Gln Thr
 305 310 315 320
 Arg Pro Val Leu Arg Asn Asp Glu Phe Gly Arg Leu Thr Lys Leu Phe
 325 330 335
 Asn His Met Thr Glu Gln Leu Ser Ile Ala Lys Glu Ala Asp Glu Arg
 340 345 350
 Asn Arg Arg Arg Glu Glu Ala Ala Arg His Tyr Leu Glu Cys Val Leu
 355 360 365
 Asp Gly Leu Thr Thr Gly Val Val Val Phe Asp Glu Lys Gly Arg Leu

370	375	380
Lys Thr Phe Asn Lys	Ala Ala Glu Gln Ile	Leu Gly Met Pro Leu Ala
385	390	395 400
Pro Leu Trp Gly Ser	Ser Arg His Gly Trp His Gly Val Ser Ala Gln	
	405	410 415
Gln Ser Leu Leu Ala Glu Val Phe Ala Ala Ile Gly Ala Ala Ala Gly		
	420	425 430
Thr Asp Lys Pro Val Gln Val Glu Tyr Ala Ala Pro Asp Asp Ala Lys		
	435	440 445
Ile Leu Leu Gly Lys Ala Thr Val Leu Pro Glu Asp Asn Gly Asn Gly		
	450	455 460
Val Val Met Val Ile Asp Asp Ile Thr Val Leu Ile Arg Ala Gln Lys		
	465	470 475 480
Glu Ala Ala Trp Gly Glu Val Ala Lys Arg Leu Ala His Glu Ile Arg		
	485	490 495
Asn Pro Leu Thr Pro Ile Gln Leu Ser Ala Glu Arg Leu Ala Trp Lys		
	500	505 510
Leu Gly Gly Lys Leu Asp Asp Gln Asp Ala Gln Ile Leu Thr Arg Ser		
	515	520 525
Thr Asp Thr Ile Ile Lys Gln Val Ala Ala Leu Lys Glu Met Val Glu		
	530	535 540
Ala Phe Arg Asn Tyr Ala Arg Ala Pro Ser Leu Lys Leu Glu Asn Gln		
	545	550 555 560
Asp Leu Asn Ala Leu Ile Gly Asp Val Leu Ala Leu Tyr Glu Ala Gly		
	565	570 575
Pro Cys Arg Phe Glu Ala Glu Leu Ala Gly Glu Pro Leu Met Met Ala		
	580	585 590
Ala Asp Thr Thr Ala Met Arg Gln Val Leu His Asn Ile Phe Lys Asn		
	595	600 605
Ala Ala Glu Ala Ala Glu Glu Ala Asp Met Pro Glu Val Arg Val Lys		
	610	615 620
Ser Glu Thr Gly Gln Asp Gly Arg Ile Val Leu Thr Val Cys Asp Asn		
	625	630 635 640
Gly Lys Gly Phe Gly Lys Glu Met Leu His Asn Ala Phe Glu Pro Tyr		
	645	650 655
Val Thr Asp Lys Pro Ala Gly Thr Gly Leu Gly Leu Pro Val Val Lys		
	660	665 670

Lys Ile Ile Gly Glu His Gly Gly Arg Ile Ser Leu Ser Asn Gln Asp
675 680 685

Ala Gly Gly Ala Cys Val Arg Ile Ile Leu Pro Lys Thr Val Glu Thr
690 695 700

Tyr Ala
705

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<211> 465
<212> DNA
<213> Neisseria meningitidis

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cacaccactt ggggcgcatt ttcttttccc ttcatcttcc ttgccaccga cctgaccgtc 180
cgcattttcg gttctcactt ggcacggcgg attatctttt gggatgatgt ccccgccctt 240
ttgttttctt acgtcttttc cgttttggtc cacaacggca gttggacagg cttgggcgcg 300
ctgtccgaat tcaacacctt tgtcggacgc atcgccttag ccagctttgc cgcctacgcg 360
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attgcaccga acgcatcaac cgtcatcggg caccgcttgg atacg 465

<210> 260
<211> 155

<212> PRT
<213> Neisseria meningitidis

<400> 260
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20 25 30
Phe Pro Phe Gln Ile Phe Gly Ile His Thr Thr Trp Gly Ala Phe Ser
35 40 45
Phe Pro Phe Ile Phe Leu Ala Thr Asp Leu Thr Val Arg Ile Phe Gly
50 55 60
Ser His Leu Ala Arg Arg Ile Ile Phe Trp Val Met Phe Pro Ala Leu
65 70 75 80
Leu Leu Ser Tyr Val Phe Ser Val Leu Phe His Asn Gly Ser Trp Thr
85 90 95
Gly Leu Gly Ala Leu Ser Glu Phe Asn Thr Phe Val Gly Arg Ile Ala
100 105 110
Leu Ala Ser Phe Ala Ala Tyr Ala Ile Gly Gln Ile Leu Asp Ile Phe
115 120 125
Val Phe Asn Lys Leu Arg Arg Leu Lys Ala Trp Trp Ile Ala Pro Asn

130 135 140

Ala Ser Thr Val Ile Gly His Ala Leu Asp Thr
145 150 155

<210> 261
<211> 687
<212> DNA
<213> *Neisseria meningitidis*

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cacaccactt ggggcgcatt ttcctttccc ttcattcttc ttgccaccga cctgaccgtc 180
cgcattttcg gttctcactt ggcacggcgg attatctttt gggatgatgt ccccgccctt 240
ttgctttcct acgtcttttc cgttttggtc cacaacggca gttggacagg cttgggcgcg 300
ctgtccgaat tcaacacctt tgcggacgc atgccttag ccagctttgc cgcctacgcg 360
atcggacaaa tccttgatat ttttgattc aacaaattac gccgtctgaa agcgtggtgg 420
attgcaccga ccgcatcaac cgtcatcggc aacgccttgg atacgctggt atttttcgcc 480
gttgcccttct acgcaagcag cgatggattt atggcgccaa actggcaggg catcgctttt 540
gtcgattacc tgttcaaact taccgtctgc accctcttct tctgcccgc ctacggcgtg 600
atactgaatc tgctgacgaa aaaactgaca accctgcaaa ccaaacaggc gcaagaccgc 660
cccgcgccct cgctgcaaaa tccgtaa 687

<210> 262
<211> 228
<212> PRT

<213> *Neisseria meningitidis*

<400> 262
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Val Leu Phe His Ile Leu Ile Ile Ala Ala Ser Asn Tyr Leu Val Gln
20 25 30
Phe Pro Phe Gln Ile Phe Gly Ile His Thr Thr Trp Gly Ala Phe Ser
35 40 45
Phe Pro Phe Ile Phe Leu Ala Thr Asp Leu Thr Val Arg Ile Phe Gly
50 55 60
Ser His Leu Ala Arg Arg Ile Ile Phe Trp Val Met Phe Pro Ala Leu
65 70 75 80
Leu Leu Ser Tyr Val Phe Ser Val Leu Phe His Asn Gly Ser Trp Thr
85 90 95
Gly Leu Gly Ala Leu Ser Glu Phe Asn Thr Phe Val Gly Arg Ile Ala
100 105 110
Leu Ala Ser Phe Ala Ala Tyr Ala Ile Gly Gln Ile Leu Asp Ile Phe
115 120 125
Val Phe Asn Lys Leu Arg Arg Leu Lys Ala Trp Trp Ile Ala Pro Thr

130 135 140

Ala Ser Thr Val Ile Gly Asn Ala Leu Asp Thr Leu Val Phe Phe Ala
 145 150 155 160

Val Ala Phe Tyr Ala Ser Ser Asp Gly Phe Met Ala Ala Asn Trp Gln
 165 170 175

Gly Ile Ala Phe Val Asp Tyr Leu Phe Lys Leu Thr Val Cys Thr Leu
 180 185 190

Phe Phe Leu Pro Ala Tyr Gly Val Ile Leu Asn Leu Leu Thr Lys Lys
 195 200 205

Leu Thr Thr Leu Gln Thr Lys Gln Ala Gln Asp Arg Pro Ala Pro Ser
 210 215 220

Leu Gln Asn Pro
 225

<210> 263
 <211> 687
 <212> DNA
 <213> Neisseria meningitidis

<400> 263
 atgtacgcat ttaccgcccgc acagcaacag aaggcactct tctggctggg gctttttcat 60
 atcctcatca tcgcccgcag caactatctg gtgcagttcc ccttccaaat ttccggcatc 120

cacaccaatt ggggcccgtt ttccctttccc ttcattttcc tcgccaccga cctgaccgtc 180
 cgcatttttc gttcgcactt ggcacggcgg attatctttt gggtcattgt ccccgccctt 240
 ttgctttcct acgtcttttc cgttttggtc cacaacggca gttggacggg cttgggcccgc 300
 ctgtccgaat tcaacacctt tgtcggacgc atcgcgctgg caagtgttgc cgcctacgcg 360
 ctggacaaa tccttgatat ttttggttcc aacaaattac gccgtctgaa agcgtggtgg 420
 gttgccccga ctgcatcaac cgtcatcggc aacgccttag atacgttggg atttttcgcc 480
 gttgccttct acgcaagcag cgatggattt atggcggcaa actggcaggg catcgctttt 540
 gtcgattacc tgttcaaaat caccgtctgc ggtctgtttt tctgcccgc ctacggcgtg 600
 attctgaatc tgctgacgaa aaaactgacg accctgcaaa ccaaacaggc gcaagaccgc 660
 cccgcgccct cgctgcaaaa tccgtaa 687

<210> 264
 <211> 228
 <212> PRT
 <213> Neisseria meningitidis

<400> 264
 Met Tyr Ala Phe Thr Ala Ala Gln Gln Gln Lys Ala Leu Phe Trp Leu
 1 5 10 15

Val Leu Phe His Ile Leu Ile Ile Ala Ala Ser Asn Tyr Leu Val Gln
 20 25 30

Phe Pro Phe Gln Ile Ser Gly Ile His Thr Thr Trp Gly Ala Phe Ser
 35 40 45

Phe Pro Phe Ile Phe Leu Ala Thr Asp Leu Thr Val Arg Ile Phe Gly

50	55	60
Ser His Leu Ala Arg Arg Ile Ile Phe Trp Val Met Phe Pro Ala Leu		
65	70	75 80
Leu Leu Ser Tyr Val Phe Ser Val Leu Phe His Asn Gly Ser Trp Thr		
	85	90 95
Gly Leu Gly Ala Leu Ser Glu Phe Asn Thr Phe Val Gly Arg Ile Ala		
	100	105 110
Leu Ala Ser Phe Ala Ala Tyr Ala Leu Gly Gln Ile Leu Asp Ile Phe		
	115	120 125
Val Phe Asn Lys Leu Arg Arg Leu Lys Ala Trp Trp Val Ala Pro Thr		
	130	135 140
Ala Ser Thr Val Ile Gly Asn Ala Leu Asp Thr Leu Val Phe Phe Ala		
	145	150 155 160
Val Ala Phe Tyr Ala Ser Ser Asp Gly Phe Met Ala Ala Asn Trp Gln		
	165	170 175
Gly Ile Ala Phe Val Asp Tyr Leu Phe Lys Leu Thr Val Cys Gly Leu		
	180	185 190
Phe Phe Leu Pro Ala Tyr Gly Val Ile Leu Asn Leu Leu Thr Lys Lys		
	195	200 205
Leu Thr Thr Leu Gln Thr Lys Gln Ala Gln Asp Arg Pro Ala Pro Ser		
	210	215 220
Leu Gln Asn Pro		
225		

<210> 265
 <211> 687
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 265
 atgtacgcat tgaccgccgc acagcaacag aaggcactct tccggctggt gcttttccat 60
 atcctcatca tcgccgccag caactatctg gtgcagttcc ccttcggat tttcggcatc 120
 cacaccactt ggggcgcgtt ttcctttccc ttcattcttc tcgccaccga cctgaccgtc 180
 cgcattttcg gttcgcaactt ggcgcgggcg attatctttt gggatgatgt ccccgccctt 240
 ttgctttcat acgtcttttc cgttttggtc cacaacggca gttggacggg ctggggcgcg 300
 ctgtcccaat tcaacacctt tgtcggacgc atcgcgctgg caagttttgc cgcctacgcg 360
 ctcgacaaa tccttgatat tttcgtattc gacaaattac gccgtctgaa agcgtggtgg 420
 attgccccgg ccgcatcaac cgtcatcggc aatgcactgg acacgttagt attttttgcc 480
 gttgcctttt acgcaagcag cgatgaattt atggcgga actggcagg catcgctttt 540
 gtcgattacc tgttcaaact taccgtctgc accctcttct tctgcccgc ctacggcggtg 600
 atactgaatc tgctgacgaa aaaactgacg gccctgcaaa ccaaacaggc gcaagaccgc 660
 cccgtgcctt cgctgcaaaa tccgtaa 687

<210> 266

<211> 228
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 266

Met Tyr Ala Leu Thr Ala Ala Gln Gln Gln Lys Ala Leu Phe Arg Leu
 1 5 10 15

Val Leu Phe His Ile Leu Ile Ile Ala Ala Ser Asn Tyr Leu Val Gln
 20 25 30

Phe Pro Phe Arg Ile Phe Gly Ile His Thr Thr Trp Gly Ala Phe Ser
 35 40 45

Phe Pro Phe Ile Phe Leu Ala Thr Asp Leu Thr Val Arg Ile Phe Gly
 50 55 60

Ser His Leu Ala Arg Arg Ile Ile Phe Trp Val Met Phe Pro Ala Leu
 65 70 75 80

Ser Leu Ser Tyr Val Phe Ser Val Leu Phe His Asn Gly Ser Trp Thr
 85 90 95

Gly Leu Gly Ala Pro Ser Gln Phe Asn Thr Phe Val Gly Arg Ile Ala
 100 105 110

Leu Ala Ser Phe Ala Ala Tyr Ala Leu Gly Gln Ile Leu Asp Ile Phe
 115 120 125

Val Phe Asp Lys Leu Arg Arg Leu Lys Ala Trp Trp Ile Ala Pro Ala

130 135 140

Ala Ser Thr Val Ile Gly Asn Ala Leu Asp Thr Leu Val Phe Phe Ala
 145 150 155 160

Val Ala Phe Tyr Ala Ser Ser Asp Glu Phe Met Ala Ala Asn Trp Gln
 165 170 175

Gly Ile Ala Phe Val Asp Tyr Leu Phe Lys Leu Thr Val Cys Thr Leu
 180 185 190

Phe Phe Leu Pro Ala Tyr Gly Val Ile Leu Asn Leu Leu Thr Lys Lys
 195 200 205

Leu Thr Ala Leu Gln Thr Lys Gln Ala Gln Asp Arg Pro Val Pro Ser
 210 215 220

Leu Gln Asn Pro
 225

<210> 267
 <211> 519
 <212> DNA
 <213> Neisseria meningitidis

<400> 267
atggtcataa aatatacaaa tttgaatttt gcgaaattgt cgataattgc aattttgatg 60
atgtattcgt ttgaagcgaa tgcaaaygca gtmwraatat ctgaaactgt ttcagttgat 120
accggacaag gtgcgaaaat tcataagttt gtacctaaaa atagtaaaac ttattcatct 180
gatttaataa aaacggtaga tttaacacac ayyccctacgg gcgcaaaagc ccgaatcaac 240
gccaaaataa cccgcagcgt atcccgcgcc ggcgtattgg cgggggtcgg caaacttgcc 300
cgcttaggcg cgaaattcag cacaagggcg gttccctatg tcggaacagc ccttttagcc 360
cacgacgtat acgaaacttt caaagaagac atacaggcac gaggtacca atacgacccc 420
gaaaccgaca aatttgtaaa aggctacgaa tatagtaatt gcctttggta cgaagacaaa 480
agacgtatta atagaaccta tggctgctac ggcgttgat. 519

<210> 268
<211> 173
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (32)..(32)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (71)..(71)
<223> Xaa= any amino acid

<400> 268
Met Val Ile Lys Tyr Thr Asn Leu Asn Phe Ala Lys Leu Ser Ile Ile
1 5 10 15

Ala Ile Leu Met Met Tyr Ser Phe Glu Ala Asn Ala Asn Ala Val Xaa

20 25 30

Ile Ser Glu Thr Val Ser Val Asp Thr Gly Gln Gly Ala Lys Ile His
35 40 45

Lys Phe Val Pro Lys Asn Ser Lys Thr Tyr Ser Ser Asp Leu Ile Lys
50 55 60

Thr Val Asp Leu Thr His Xaa Pro Thr Gly Ala Lys Ala Arg Ile Asn
65 70 75 80

Ala Lys Ile Thr Ala Ser Val Ser Arg Ala Gly Val Leu Ala Gly Val
85 90 95

Gly Lys Leu Ala Arg Leu Gly Ala Lys Phe Ser Thr Arg Ala Val Pro
100 105 110

Tyr Val Gly Thr Ala Leu Leu Ala His Asp Val Tyr Glu Thr Phe Lys
115 120 125

Glu Asp Ile Gln Ala Arg Gly Tyr Gln Tyr Asp Pro Glu Thr Asp Lys
130 135 140

Phe Val Lys Gly Tyr Glu Tyr Ser Asn Cys Leu Trp Tyr Glu Asp Lys

145 150 155 160

Arg Arg Ile Asn Arg Thr Tyr Gly Cys Tyr Gly Val Asp
165 170

<210> 269
<211> 453
<212> DNA
<213> Neisseria meningitidis

<400> 269
atgggtcataa aatatacaaaa tttgaatttt gcgaaattgt cgataattgc aattttgatg 60
atgtattcgt ttgaagcgaa tgcaaattgca gtaaaaatat ctgaaactgt ttcagttgat 120
accggacaag gtgcgaaaat tcataagttt gtacctaaaa atagtaaaac ttattcatct 180
gatttaataa aaacggtaga tttaacacac atccctacgg gcgcaaaagc ccgaatcaac 240
gccaaaataa ccgccagcgt atcccgcgcc ggcgtattgg cgggggtcgg caaacttgcc 300
cgcttaggcg cgaaattcag cacaagggcg gttccctatg tcggaacagc ccttttagcc 360
cacgacgtat acgaaacttt caaagaagac atacaggcac gaggctacca atacgacccc 420
gaaaccgaca aatttgcaaa ggtctcaggc taa 453

<210> 270
<211> 150
<212> PRT
<213> Neisseria meningitidis

<400> 270
Met Val Ile Lys Tyr Thr Asn Leu Asn Phe Ala Lys Leu Ser Ile Ile
1 5 10 15

Ala Ile Leu Met Met Tyr Ser Phe Glu Ala Asn Ala Asn Ala Val Lys
20 25 30

Ile Ser Glu Thr Val Ser Val Asp Thr Gly Gln Gly Ala Lys Ile His
35 40 45

Lys Phe Val Pro Lys Asn Ser Lys Thr Tyr Ser Ser Asp Leu Ile Lys
50 55 60

Thr Val Asp Leu Thr His Ile Pro Thr Gly Ala Lys Ala Arg Ile Asn
65 70 75 80

Ala Lys Ile Thr Ala Ser Val Ser Arg Ala Gly Val Leu Ala Gly Val
85 90 95

Gly Lys Leu Ala Arg Leu Gly Ala Lys Phe Ser Thr Arg Ala Val Pro
100 105 110

Tyr Val Gly Thr Ala Leu Leu Ala His Asp Val Tyr Glu Thr Phe Lys
115 120 125

Glu Asp Ile Gln Ala Arg Gly Tyr Gln Tyr Asp Pro Glu Thr Asp Lys
130 135 140

Phe Ala Lys Val Ser Gly
145 150

<210> 271
 <211> 453
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 271
 atgggtcataa aatatacaaaa tttgaatttt gcgaaattgt cgataattgc aattttgatg 60
 atgtattcgt ttgaagcgaa tgcaaagca gtaaaaatat ctgaaactgt ttcagttgat 120
 accggacaag gtgcgaaaat tcataagttt gtacctaaaa atagtaaaac ttattcatct 180
 gatttaataa aaacggtaga tttaacacac atccctacgg gcgcaaaagc ccgaatcaac 240
 gccaaaataa ccgccagcgt atcccgcgcc ggcgatttgg cgggggtcgg caaacttgcc 300
 cgcttaggcg cgaaattcag cacaaggcg gttccctatg tcggaacagc ccttttagcc 360
 cagcagctat acgaaacttt caaagaagac atacaggcac gaggctacca atacgacccc 420
 gaaaccgaca aatttgcaaa ggtctcaggc taa 453

<210> 272
 <211> 150
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 272
 Met Val Ile Lys Tyr Thr Asn Leu Asn Phe Ala Lys Leu Ser Ile Ile
 1 5 10 15
 Ala Ile Leu Met Met Tyr Ser Phe Glu Ala Asn Ala Asn Ala Val Lys
 20 25 30
 Ile Ser Glu Thr Val Ser Val Asp Thr Gly Gln Gly Ala Lys Ile His
 35 40 45
 Lys Phe Val Pro Lys Asn Ser Lys Thr Tyr Ser Ser Asp Leu Ile Lys
 50 55 60
 Thr Val Asp Leu Thr His Ile Pro Thr Gly Ala Lys Ala Arg Ile Asn
 65 70 75 80
 Ala Lys Ile Thr Ala Ser Val Ser Arg Ala Gly Val Leu Ala Gly Val
 85 90 95
 Gly Lys Leu Ala Arg Leu Gly Ala Lys Phe Ser Thr Arg Ala Val Pro
 100 105 110
 Tyr Val Gly Thr Ala Leu Leu Ala His Asp Val Tyr Glu Thr Phe Lys
 115 120 125
 Glu Asp Ile Gln Ala Arg Gly Tyr Gln Tyr Asp Pro Glu Thr Asp Lys
 130 135 140
 Phe Ala Lys Val Ser Gly
 145 150

<210> 273
 <211> 8
 <212> DNA
 <213> *Neisseria gonorrhoeae*

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 273
 nnnnnnnn

8

<210> 274
 <211> 526
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 274
 Met Val Thr Lys His Thr Asn Leu Asn Phe Ala Lys Leu Ser Ile Ile
 1 5 10 15
 Ala Ile Leu Met Met Tyr Ser Phe Glu Ala Asn Ala Asn Ala Val Lys
 20 25 30
 Ile Ser Glu Thr Leu Ser Val Asp Thr Gly Gln Gly Ala Lys Val His
 35 40 45
 Lys Phe Val Pro Lys Ser Ser Asn Ile Tyr Ser Ser Asp Leu Thr Lys
 50 55 60
 Ala Val Asp Leu Thr His Ile Pro Thr Gly Ala Lys Ala Arg Ile Asn
 65 70 75 80
 Ala Lys Ile Thr Ala Ser Val Ser Arg Ala Gly Val Leu Ser Gly Val
 85 90 95
 Gly Lys Leu Val Arg Gln Gly Ala Lys Phe Gly Thr Arg Ala Val Pro
 100 105 110
 Tyr Val Gly Thr Ala Leu Leu Ala His Asp Val Tyr Glu Thr Phe Lys
 115 120 125
 Glu Asp Ile Gln Ala Arg Gly Cys Arg Tyr Asp Pro Glu Thr Asp Lys
 130 135 140
 Phe Val Lys Gly Tyr Glu Tyr Ala Asn Cys Leu Trp Tyr Glu Asp Glu
 145 150 155 160
 Arg Arg Ile Asn Arg Thr Tyr Gly Cys Tyr Gly Val Asp Ser Ser Ile
 165 170 175
 Met Arg Leu Met Pro Asp Arg Ser Arg Phe Pro Glu Val Lys Gln Leu
 180 185 190
 Met Glu Ser Gln Met Tyr Arg Leu Ala Arg Pro Phe Trp Asn Trp Arg
 195 200 205
 Lys Glu Glu Leu Asn Lys Leu Ser Ser Leu Asp Trp Asn Asn Phe Val

Ile Met Ser Ala Phe Val Val Phe Gly Ser Leu Gly Gly Glu
515 520 525

<210> 275
<211> 435
<212> DNA
<213> Neisseria gonorrhoeae

<400> 275
atgggtcacaa aacatacaaaa tttgaatttt gcgaaattgt cgataattgc aattttgatg 60
atgtattcgt ttgaagcgaa tgcaaattgca gtaaaaatat ctgaaactct ttcggttgat 120
accggacaag gcgcgaaagt tcataagttc gttcctaaat caagtaatat ttattcatct 180
gatttaacaa aagcggtaga ttttaacgcat atccccacgg gcgcaaaagc ccgaatcaac 240
gccaaaataa ccgccagcgt atccccgcgc gccgtattgt cgggggtcgg caaacttgtc 300
cgccaaggcg cgaaattcgg cacaaggcg gttccctatg tcggaacagc ccttttagcc 360
cacgacgtat acgaaacttt caaagaagac atacaggcac gaggctgccg atacgatccc 420
gaaaccgaca aattt 435

<210> 276
<211> 145
<212> PRT
<213> Neisseria gonorrhoeae

<400> 276
Met Val Thr Lys His Thr Asn Leu Asn Phe Ala Lys Leu Ser Ile Ile
1 5 10 15

Ala Ile Leu Met Met Tyr Ser Phe Glu Ala Asn Ala Asn Ala Val Lys
20 25 30

Ile Ser Glu Thr Leu Ser Val Asp Thr Gly Gln Gly Ala Lys Val His
35 40 45

Lys Phe Val Pro Lys Ser Ser Asn Ile Tyr Ser Ser Asp Leu Thr Lys
50 55 60

Ala Val Asp Leu Thr His Ile Pro Thr Gly Ala Lys Ala Arg Ile Asn
65 70 75 80

Ala Lys Ile Thr Ala Ser Val Ser Arg Ala Gly Val Leu Ser Gly Val
85 90 95

Gly Lys Leu Val Arg Gln Gly Ala Lys Phe Gly Thr Arg Ala Val Pro
100 105 110

Tyr Val Gly Thr Ala Leu Leu Ala His Asp Val Tyr Glu Thr Phe Lys
115 120 125

Glu Asp Ile Gln Ala Arg Gly Cys Arg Tyr Asp Pro Glu Thr Asp Lys
130 135 140

Phe
145

<210> 277

<211> 229
 <212> DNA
 <213> Neisseria meningitidis

<400> 277
 atgagatttt tccgtatcgg ttttttggtg ctgctgtttt tggagattat gtcgattgtg 60
 tgggttgccg attggctggg cggcggctgg acgttgtttt tgatggcggc aggttttgcc 120
 gccggcgtgc tgatgctcag gcaaaccggg gctgaccggg cttttattgg cgggcgcggc 180
 aatgagaagc ggcgggaagg tatccgttta tcagatgttg tggcctatc 229

<210> 278
 <211> 76
 <212> PRT
 <213> Neisseria meningitidis

<400> 278
 Met Arg Phe Phe Gly Ile Gly Phe Leu Val Leu Leu Phe Leu Glu Ile
 1 5 10 15
 Met Ser Ile Val Trp Val Ala Asp Trp Leu Gly Gly Gly Trp Thr Leu
 20 25 30
 Phe Leu Met Ala Ala Gly Phe Ala Ala Gly Val Leu Met Leu Arg Gln
 35 40 45
 Thr Gly Leu Thr Gly Leu Leu Leu Ala Gly Ala Ala Met Arg Ser Gly
 50 55 60
 Gly Lys Val Ser Val Tyr Gln Met Leu Trp Pro Ile
 65 70 75

<210> 279
 <211> 486
 <212> DNA
 <213> Neisseria meningitidis

<400> 279
 atgagatttt tccgtatcgg ttttttggtg ctgctgtttt tggagattat gtcgattgtg 60
 tgggttgccg attggctggg cggcggctgg acgttgtttt tgatggcggc aggttttgcc 120
 gccggcgtgc tgatgctcag gcatacgggg ctgtccgggc ttttattggc gggcgcggca 180
 atgagaagcg gcgggagggt atccgtttat cagatgttgt ggcctatccg ttatacggtg 240
 gcggctgtgt gtctgatgag tccgggattc gtatcctcgg tgttggcggg attgctgctg 300
 ctgccgttta agggaggggc agtggttcag gcaggagggt cggaaaattt tttcaacatg 360
 aaccaatcgg gcagaaaaga gggcttttcc cgcgatgacg atattatcga gggagaatat 420
 acggttgaag agccttacgg cggcaatcgt tcccgaacg ccatcgaaca caaaaaagac 480
 gaataa 486

<210> 280
 <211> 161
 <212> PRT
 <213> Neisseria meningitidis

<400> 280
 Met Arg Phe Phe Gly Ile Gly Phe Leu Val Leu Leu Phe Leu Glu Ile
 1 5 10 15

Met Ser Ile Val Trp Val Ala Asp Trp Leu Gly Gly Gly Trp Thr Leu
 20 25 30
 Phe Leu Met Ala Ala Gly Phe Ala Ala Gly Val Leu Met Leu Arg His
 35 40 45
 Thr Gly Leu Ser Gly Leu Leu Leu Ala Gly Ala Ala Met Arg Ser Gly
 50 55 60
 Gly Arg Val Ser Val Tyr Gln Met Leu Trp Pro Ile Arg Tyr Thr Val
 65 70 75 80
 Ala Ala Val Cys Leu Met Ser Pro Gly Phe Val Ser Ser Val Leu Ala
 85 90 95
 Val Leu Leu Leu Leu Pro Phe Lys Gly Gly Ala Val Leu Gln Ala Gly
 100 105 110
 Gly Ala Glu Asn Phe Phe Asn Met Asn Gln Ser Gly Arg Lys Glu Gly
 115 120 125
 Phe Ser Arg Asp Asp Asp Ile Ile Glu Gly Glu Tyr Thr Val Glu Glu
 130 135 140
 Pro Tyr Gly Gly Asn Arg Ser Arg Asn Ala Ile Glu His Lys Lys Asp
 145 150 155 160
 Glu

<210> 281
 <211> 486
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> misc_feature

<222> (213)..(213)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (224)..(224)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (254)..(254)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (284)..(284)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (298)..(298)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (303)..(303)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (366)..(366)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (381)..(381)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (385)..(385)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (432)..(432)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (446)..(446)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (463)..(463)

<223> N= Unknown

<220>
 <221> misc_feature
 <222> (465)..(465)
 <223> N= Unknown

<400> 281
 atgagatttt tccgtatcgg ttttttggtg ctgctgtttt tggagattat gtcgattgtg 60
 tgggttgccg attggttggg cggcggttgg acgctgtttc taatggcggc aacctttgcc 120
 gccggcgtgg tgatgctcag gcatacgggg ctgtccggtc ttttattggc gggcgcgga 180
 atgagaagcg gcgggagggg atccgtttat canatgttgt ggcntatccg ttatacggtg 240
 gcggcggtgt gtcngatgag tccgggattc gtatcctcgg tgtnggcggg attgctgntg 300
 ctncggttta agggaggtgc agtggtgcag gcaggaggtg cggaaaattt tttcaacatg 360
 aaccantcgg gcagaaaaga nggcntttcc cgcgatgacg atattatcga ggggggaatat 420
 acggttgaag anccttacgg cggcantcgt ttccgaaacg ccntngaaca caaaaaagac 480

<210> 282
<211> 161
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (71)..(71)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (75)..(75)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (85)..(85)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (95)..(95)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (100)..(100)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (122)..(122)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (127)..(127)

<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (129)..(129)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (144)..(144)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (149)..(149)

<223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (155)..(155)

<223> Xaa= any amino acid

<400> 282

Met Arg Phe Phe Gly Ile Gly Phe Leu Val Leu Leu Phe Leu Glu Ile
1 5 10 15

Met Ser Ile Val Trp Val Ala Asp Trp Leu Gly Gly Gly Trp Thr Leu
20 25 30

Phe Leu Met Ala Ala Thr Phe Ala Ala Gly Val Val Met Leu Arg His
35 40 45

Thr Gly Leu Ser Gly Leu Leu Leu Ala Gly Ala Ala Met Arg Ser Gly
50 55 60

Gly Arg Val Ser Val Tyr Xaa Met Leu Trp Xaa Ile Arg Tyr Thr Val
65 70 75 80

Ala Ala Val Cys Xaa Met Ser Pro Gly Phe Val Ser Ser Val Xaa Ala
85 90 95

Val Leu Leu Xaa Leu Pro Phe Lys Gly Gly Ala Val Leu Gln Ala Gly
100 105 110

Gly Ala Glu Asn Phe Phe Asn Met Asn Xaa Ser Gly Arg Lys Xaa Gly
115 120 125

Xaa Ser Arg Asp Asp Asp Ile Ile Glu Gly Glu Tyr Thr Val Glu Xaa
130 135 140

Pro Tyr Gly Gly Xaa Arg Phe Arg Asn Ala Xaa Glu His Lys Lys Asp
145 150 155 160

Glu

<210> 283

<211> 486

<212> DNA

<213> Neisseria gonorrhoeae

<400> 283

atgagatttt	tccgtatcgg	ttttttggtg	ctgctgtttt	tggaattat	gtcgtattgtg	60
tgggttgccg	attggctggg	cggcggttgg	acgctgtttc	taatggcggc	aacctttgcc	120
gccggtgtgc	tgatgctcag	gcatacgggg	ctgtccggtc	ttttattggc	tggcgcggcg	180
gtaaaaagta	gtgggaaggt	atctgtttat	cagatgttgt	ggcctatccg	ttatacggtg	240
gcggcggtgt	gtctgatgag	tccgggattc	gtatcctccg	tgttggcggg	attgctgctg	300
ctgccgttta	agggaggggc	agtgttgacg	gcaggagggtg	cggaaaaattt	tttcaacatg	360
aaccaatcgg	gcagaaaaga	gggatttttc	cacgatgacg	atattatcga	gggagaatat	420
acggttgaaa	aacctgacgg	cggcaatcgt	tcccgaacg	ccatcgaaca	cgaaaaagac	480

gaataa

486

<210> 284
 <211> 161
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 284
 Met Arg Phe Phe Gly Ile Gly Phe Leu Val Leu Leu Phe Leu Glu Ile
 1 5 10 15
 Met Ser Ile Val Trp Val Ala Asp Trp Leu Gly Gly Gly Trp Thr Leu
 20 25 30
 Phe Leu Met Ala Ala Thr Phe Ala Ala Gly Val Leu Met Leu Arg His
 35 40 45
 Thr Gly Leu Ser Gly Leu Leu Leu Ala Gly Ala Ala Val Lys Ser Ser
 50 55 60
 Gly Lys Val Ser Val Tyr Gln Met Leu Trp Pro Ile Arg Tyr Thr Val
 65 70 75 80
 Ala Ala Val Cys Leu Met Ser Pro Gly Phe Val Ser Ser Val Leu Ala
 85 90 95
 Val Leu Leu Leu Leu Pro Phe Lys Gly Gly Ala Val Leu Gln Ala Gly
 100 105 110
 Gly Ala Glu Asn Phe Phe Asn Met Asn Gln Ser Gly Arg Lys Glu Gly
 115 120 125
 Phe Phe His Asp Asp Asp Ile Ile Glu Gly Glu Tyr Thr Val Glu Lys
 130 135 140
 Pro Asp Gly Gly Asn Arg Ser Arg Asn Ala Ile Glu His Glu Lys Asp
 145 150 155 160
 Glu

<210> 285

<211> 862
 <212> DNA
 <213> Neisseria meningitidis

<400> 285
 atgtttgttt ttcagacggc attcttatgt ttcagaaaca tttgcagaaa gcctccgaca 60
 gcgtcgtcgg agggacatta tacgtggttg ccacgcccac cggcaatttg gcggacatta 120
 ccctgcgcgc tttggcggta ttgcaaaagg cggccgaaga cacgcgcgtt accgcacagc 180
 ttttgagcgc gtacggcatt cagggcaaac tcgtcagtgt gcgcgaacac aacgaacggc 240
 agatggcggc caagattgtc ggctatcttt cagacggcat ggttgtggca caggtttccg 300
 atcggggtac gccggccgtg tgcgacccgg gcgcgaaact cgcccggcgc gtgcgtgagg 360
 ccgggtttta agtcggttccc gtcgtgggcg caacgcgggtg atggcggcct tgagcgtggc 420
 cgggtgtggaa ggatccgatt tttatttcaa cgggttttga ccgccgaaat cgggagaacg 480

caggaaactg tttgccaaat ggggtgcgggc ggcgtttcct atcgatcatgt ttgaaacgcc 540
gcaccgcacg ggtgcagcgc ttgccgatat ggcggaactg ttccccgaac gccgattaat 600
gctggcgcgc gaaattacga aaacgtttga aacgtttctta agcggcacgg ttgggggaaat 660
tcagacggca ttgtctgccc acggcgacca atcgcgcggc gagatggtgt tgggtgcttta 720
tccggcgcag gatgaaaaac acgaaggctt gtccgagtcg gcgcaaaaca tcatgaaaat 780
cctcacagcc gagctgccga ccaaacaggc ggcggagctt gctgccaaaa tcacgggcca 840
gggaaagaaa gctttgtacg at 862

<210> 286
<211> 288
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (9)..(9)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (132)..(132)
<223> Xaa= any amino acid

<400> 286
Met Phe Val Phe Gln Thr Ala Phe Xaa Met Phe Gln Lys His Leu Gln
1 5 10 15
Lys Ala Ser Asp Ser Val Val Gly Gly Thr Leu Tyr Val Val Ala Thr
20 25 30
Pro Ile Gly Asn Leu Ala Asp Ile Thr Leu Arg Ala Leu Ala Val Leu
35 40 45
Gln Lys Ala Ala Glu Asp Thr Arg Val Thr Ala Gln Leu Leu Ser Ala
50 55 60
Tyr Gly Ile Gln Gly Lys Leu Val Ser Val Arg Glu His Asn Glu Arg
65 70 75 80
Gln Met Ala Asp Lys Ile Val Gly Tyr Leu Ser Asp Gly Met Val Val
85 90 95
Ala Gln Val Ser Asp Ala Gly Thr Pro Ala Val Cys Asp Pro Gly Ala
100 105 110
Lys Leu Ala Arg Arg Val Arg Glu Ala Gly Phe Lys Val Val Pro Val
115 120 125
Val Gly Ala Xaa Ala Val Met Ala Ala Leu Ser Val Ala Gly Val Glu
130 135 140
Gly Ser Asp Phe Tyr Phe Asn Gly Phe Val Pro Pro Lys Ser Gly Glu
145 150 155 160
Arg Arg Lys Leu Phe Ala Lys Trp Val Arg Ala Ala Phe Pro Ile Val

165	170	175
Met Phe Glu Thr Pro His Arg Ile Gly Ala Ala Leu Ala Asp Met Ala		
180	185	190
Glu Leu Phe Pro Glu Arg Arg Leu Met Leu Ala Arg Glu Ile Thr Lys		
195	200	205
Thr Phe Glu Thr Phe Leu Ser Gly Thr Val Gly Glu Ile Gln Thr Ala		
210	215	220
Leu Ser Ala Asp Gly Asp Gln Ser Arg Gly Glu Met Val Leu Val Leu		
225	230	235
Tyr Pro Ala Gln Asp Glu Lys His Glu Gly Leu Ser Glu Ser Ala Gln		
245	250	255
Asn Ile Met Lys Ile Leu Thr Ala Glu Leu Pro Thr Lys Gln Ala Ala		
260	265	270
Glu Leu Ala Ala Lys Ile Thr Gly Glu Gly Lys Lys Ala Leu Tyr Asp		
275	280	285

<210> 287
 <211> 876
 <212> DNA
 <213> Neisseria meningitidis

<400> 287

atgtttcaga aacatttgca gaaagcctcc gacagcgctcg tcggaggggac attatacgtg	60
gttgccacgc ccacgcggcaa tttggcggac attaccctgc gcgctttggc ggtattgcaa	120
aaggcgggaca tcatctgtgc cgaagacacg cgcgttacccg cacagctttt gagcgcgtac	180
ggcattcagg gcaaactcgt cagtgtgcgc gaacacacacg aacggcagat ggcggacaag	240
attgtcggct atctttcaga cggcatggtt gtggcacagg tttccgatgc gggtagcccg	300
gccgtgtgcg acccgggcgc gaaactcgcc cgccgcgtgc gtgaggcccg gtttaaagtc	360
gttcccgtcg tgggcgcaag cgcggtgatg gcggctttga gcgtggcccg tgtggaagga	420
tccgattttt atttcaacgg tttgtaccg ccgaaatcgg gagaacgcag gaaactgttt	480
gccaaatggg tgcgggcggc gtttcctatc gtcattgttg aaacgcccga ccgcatcggt	540
gcgacgcttg ccgatatggc ggaactgttc cccgaacgcc gattaatgct ggcgcgcgaa	600
attacgaaaa cgtttgaaac gttcttaagc ggcacgggtt gggaaattca gacggcattg	660
tctgccgacg gcaaccaatc gcgcggcgag atggtgttgg tgctttatcc ggcgcaggat	720
gaaaaacacg aaggcttgtc cgagtcgcgc caaaacatca tgaaaatcct cacagccgag	780
ctgccgacca aacaggcggc ggagcttgct gccaaaatca cgggcgaggg aaagaaagct	840
ttgtacgata tggctctgtc ttggaaaaac aaatag	876

<210> 288
 <211> 291
 <212> PRT
 <213> Neisseria meningitidis

<400> 288

Met Phe Gln Lys His Leu Gln Lys Ala Ser Asp Ser Val Val Gly Gly	
1	15
Thr Leu Tyr Val Val Ala Thr Pro Ile Gly Asn Leu Ala Asp Ile Thr	
20	30

Leu Arg Ala Leu Ala Val Leu Gln Lys Ala Asp Ile Ile Cys Ala Glu
 35 40 45
 Asp Thr Arg Val Thr Ala Gln Leu Leu Ser Ala Tyr Gly Ile Gln Gly
 50 55 60
 Lys Leu Val Ser Val Arg Glu His Asn Glu Arg Gln Met Ala Asp Lys
 65 70 75 80
 Ile Val Gly Tyr Leu Ser Asp Gly Met Val Val Ala Gln Val Ser Asp
 85 90 95
 Ala Gly Thr Pro Ala Val Cys Asp Pro Gly Ala Lys Leu Ala Arg Arg
 100 105 110
 Val Arg Glu Ala Gly Phe Lys Val Val Pro Val Val Gly Ala Ser Ala
 115 120 125
 Val Met Ala Ala Leu Ser Val Ala Gly Val Glu Gly Ser Asp Phe Tyr
 130 135 140
 Phe Asn Gly Phe Val Pro Pro Lys Ser Gly Glu Arg Arg Lys Leu Phe
 145 150 155 160
 Ala Lys Trp Val Arg Ala Ala Phe Pro Ile Val Met Phe Glu Thr Pro
 165 170 175
 His Arg Ile Gly Ala Thr Leu Ala Asp Met Ala Glu Leu Phe Pro Glu
 180 185 190
 Arg Arg Leu Met Leu Ala Arg Glu Ile Thr Lys Thr Phe Glu Thr Phe
 195 200 205
 Leu Ser Gly Thr Val Gly Glu Ile Gln Thr Ala Leu Ser Ala Asp Gly
 210 215 220
 Asn Gln Ser Arg Gly Glu Met Val Leu Val Leu Tyr Pro Ala Gln Asp
 225 230 235 240
 Glu Lys His Glu Gly Leu Ser Glu Ser Ala Gln Asn Ile Met Lys Ile
 245 250 255
 Leu Thr Ala Glu Leu Pro Thr Lys Gln Ala Ala Glu Leu Ala Ala Lys
 260 265 270
 Ile Thr Gly Glu Gly Lys Lys Ala Leu Tyr Asp Leu Ala Leu Ser Trp
 275 280 285
 Lys Asn Lys
 290

<210> 289
 <211> 876
 <212> DNA
 <213> Neisseria meningitidis

<400> 289
atgtttcaga aacatttgca gaaagcctcc gacagcgtcg tcggagggac attatacgtg 60
gttgccacgc ccacgagcaa tttggcggac attaccctgc gcgctttggc ggtattgcaa 120
aaggcggaca tcactctgtc cgaagacacg cgcgttaccc cgcagctttt gagcgcgtac 180
ggcattcagg gcaaactcgt cagcgtgcgc gaacacaacg aacggcagat ggcggacaag 240
attgtcggct atctttcaga cggcatggtt gtggcacagg tttccgatgc gggtagcccg 300
gccgtgtgcg acccggggcg gaaactcgcc cgccgcgtgc gtgaggtcgg gtttaaagtt 360
gtccctgttg tcggcgcaag cgcggtgatg gcggttttga gtgtggctgg tgtggcggga 420
tccgattttt atttcaacgg ttttgtaccg ccgaaatcgg gcgaacgtag gaaattgttt 480
gccaaatggg tcggggtggc gtttcccgtc gtgatgtttg aaacgccgca ccgcatcggg 540
gcgacgcttg ccgatatggc ggaactgttc cccgaacgcc gattaatgct ggcgcgcgaa 600
atcacgaaaa cgtttgaaac gttcttaagc ggcacggttg gggaaattca gacggcattg 660
gcggcggacg gcaaccaatc gcgcggcgag atggtgttgg tgctttatcc ggcgcaggat 720
gaaaaacacg aaggcttgtc cgagtcgcgc caaaacatca tgaaaatcct cacagccgag 780
ctgccgacca aacaggcggc ggagcttgcc gccaaaatca cgggcgaggg aaaaaaagct 840
ttgtacgatc tggcactgtc ttggaaaaac aaatga 876

<210> 290
<211> 291
<212> PRT
<213> Neisseria meningitidis

<400> 290
Met Phe Gln Lys His Leu Gln Lys Ala Ser Asp Ser Val Val Gly Gly
1 5 10 15
Thr Leu Tyr Val Val Ala Thr Pro Ile Gly Asn Leu Ala Asp Ile Thr
20 25 30
Leu Arg Ala Leu Ala Val Leu Gln Lys Ala Asp Ile Ile Cys Ala Glu
35 40 45
Asp Thr Arg Val Thr Ala Gln Leu Leu Ser Ala Tyr Gly Ile Gln Gly
50 55 60
Lys Leu Val Ser Val Arg Glu His Asn Glu Arg Gln Met Ala Asp Lys
65 70 75 80
Ile Val Gly Tyr Leu Ser Asp Gly Met Val Val Ala Gln Val Ser Asp
85 90 95
Ala Gly Thr Pro Ala Val Cys Asp Pro Gly Ala Lys Leu Ala Arg Arg
100 105 110
Val Arg Glu Val Gly Phe Lys Val Val Pro Val Val Gly Ala Ser Ala
115 120 125
Val Met Ala Ala Leu Ser Val Ala Gly Val Ala Gly Ser Asp Phe Tyr
130 135 140
Phe Asn Gly Phe Val Pro Pro Lys Ser Gly Glu Arg Arg Lys Leu Phe
145 150 155 160
Ala Lys Trp Val Arg Val Ala Phe Pro Val Val Met Phe Glu Thr Pro

165										170					175				
His	Arg	Ile	Gly	Ala	Thr	Leu	Ala	Asp	Met	Ala	Glu	Leu	Phe	Pro	Glu				
			180					185					190						
Arg	Arg	Leu	Met	Leu	Ala	Arg	Glu	Ile	Thr	Lys	Thr	Phe	Glu	Thr	Phe				
		195					200					205							
Leu	Ser	Gly	Thr	Val	Gly	Glu	Ile	Gln	Thr	Ala	Leu	Ala	Ala	Asp	Gly				
	210					215					220								
Asn	Gln	Ser	Arg	Gly	Glu	Met	Val	Leu	Val	Leu	Tyr	Pro	Ala	Gln	Asp				
225					230					235					240				
Glu	Lys	His	Glu	Gly	Leu	Ser	Glu	Ser	Ala	Gln	Asn	Ile	Met	Lys	Ile				
			245						250					255					
Leu	Thr	Ala	Glu	Leu	Pro	Thr	Lys	Gln	Ala	Ala	Glu	Leu	Ala	Ala	Lys				
		260						265					270						
Ile	Thr	Gly	Glu	Gly	Lys	Lys	Ala	Leu	Tyr	Asp	Leu	Ala	Leu	Ser	Trp				
	275						280					285							
Lys	Asn	Lys																	
	290																		

<210> 291
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 291
 nnnnnnnn

8

<210> 292
 <211> 300
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 292																			
Met	Ser	Val	Phe	Gln	Thr	Ala	Phe	Phe	Met	Phe	Gln	Lys	His	Leu	Gln				
1			5						10					15					

Lys	Ala	Ser	Asp	Ser	Val	Val	Gly	Gly	Thr	Leu	Tyr	Val	Val	Ala	Thr				
		20						25					30						

Pro	Ile	Gly	Asn	Leu	Ala	Asp	Ile	Thr	Leu	Arg	Ala	Leu	Ala	Val	Leu				
		35					40					45							

Gln	Lys	Ala	Asp	Ile	Ile	Cys	Ala	Glu	Asp	Thr	Arg	Val	Thr	Ala	Gln				
	50					55					60								

Leu Leu Ser Ala Tyr Gly Ile Gln Gly Arg Leu Val Ser Val Arg Glu
 65 70 75 80
 His Asn Glu Arg Gln Met Ala Asp Lys Val Ile Gly Phe Leu Ser Asp
 85 90 95
 Gly Leu Val Val Ala Gln Val Ser Asp Ala Gly Thr Pro Ala Val Cys
 100 105 110
 Asp Pro Gly Ala Lys Leu Ala Arg Arg Val Arg Glu Ala Gly Phe Lys
 115 120 125
 Val Val Pro Val Val Gly Ala Ser Ala Val Met Ala Ala Leu Ser Val
 130 135 140
 Ala Gly Val Ala Glu Ser Asp Phe Tyr Phe Asn Gly Phe Val Pro Pro
 145 150 155 160
 Lys Ser Gly Glu Arg Arg Lys Leu Phe Ala Lys Trp Val Arg Ala Ala
 165 170 175
 Phe Pro Val Val Met Phe Glu Thr Pro His Arg Ile Gly Ala Thr Leu
 180 185 190
 Ala Asp Met Ala Glu Leu Phe Pro Glu Arg Arg Leu Met Leu Ala Arg
 195 200 205
 Glu Ile Thr Lys Thr Phe Glu Thr Phe Leu Ser Gly Thr Val Gly Glu
 210 215 220
 Ile Gln Thr Ala Leu Ala Ala Asp Gly Asn Gln Ser Arg Gly Glu Met
 225 230 235 240
 Val Leu Val Leu Tyr Pro Ala Gln Asp Glu Lys His Glu Gly Leu Ser
 245 250 255
 Glu Ser Ala Gln Asn Ala Met Lys Ile Leu Ala Ala Glu Leu Pro Thr
 260 265 270
 Lys Gln Ala Ala Glu Leu Ala Ala Lys Ile Thr Gly Glu Gly Lys Lys
 275 280 285
 Ala Leu Tyr Asp Leu Ala Leu Ser Trp Lys Asn Lys
 290 295 300

<210> 293

<211> 876

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 293

atgtttcaga aacacttgca gaaagcctcc gacagcgctcg tcggagggac attatacgtg	60
gttgccacgc ccatcgga tttggcagac attacccctgc gcgctttggc ggtattgcaa	120
aaggcggaca tcatttgtgc cgaagacacg cgcgttactg cgcagctttt gagegcgtac	180

ggcattcagg	gcaggttggt	cagtgtgcgc	gaacacaacg	agcggcagat	ggcggacaag	240
gtaatcggtt	tcctttcaga	cggccttggt	gtggcgagc	tttccgatgc	gggtacgccg	300
gccgtgtgcg	acccggggcg	gaaactcgcc	cgcgcggtgc	gcgaagcagg	gttcaaagtc	360
gttcccgtcg	tgggcgcaag	cgcggtaatg	gcggcgttga	gtgtggccgg	tgtggcggaa	420
tccgattttt	atttcaacgg	ttttgtaccg	ccgaaatcgg	gcgaacgtag	gaaattgttt	480
gccaaatggg	tgcggggcgg	atttcctgtc	gtcatgtttg	aaacgccgca	ccgaatcggg	540
gcaacgcttg	ccgatatggc	ggaattgttc	cccgaacgcc	gtctgatgct	ggcgcgcgaa	600
atcacgaaaa	cgtttgaaac	gttcttaagc	ggcacggttg	gggaaattca	gacggcattg	660
gcggcggacg	gcaaccaatc	gcgcggcgag	atggtgttg	tgctttatcc	ggcgcaggat	720
gaaaaacacg	aaggcttgtc	cgagtcctgc	caaaatgcga	tgaaaatcct	tgcggccgag	780
ctgccgacca	agcaggcggc	ggagcttgcc	gccaagatta	caggtgaggg	caaaaaggct	840
ttgtacgatt	tggcactgtc	gtggaaaaac	aatga			876

<210> 294
 <211> 291
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 294
 Met Phe Gln Lys His Leu Gln Lys Ala Ser Asp Ser Val Val Gly Gly
 1 5 10 15
 Thr Leu Tyr Val Val Ala Thr Pro Ile Gly Asn Leu Ala Asp Ile Thr
 20 25 30
 Leu Arg Ala Leu Ala Val Leu Gln Lys Ala Asp Ile Ile Cys Ala Glu
 35 40 45
 Asp Thr Arg Val Thr Ala Gln Leu Leu Ser Ala Tyr Gly Ile Gln Gly
 50 55 60
 Arg Leu Val Ser Val Arg Glu His Asn Glu Arg Gln Met Ala Asp Lys
 65 70 75 80
 Val Ile Gly Phe Leu Ser Asp Gly Leu Val Val Ala Gln Val Ser Asp
 85 90 95
 Ala Gly Thr Pro Ala Val Cys Asp Pro Gly Ala Lys Leu Ala Arg Arg
 100 105 110
 Val Arg Glu Ala Gly Phe Lys Val Val Pro Val Val Gly Ala Ser Ala
 115 120 125
 Val Met Ala Ala Leu Ser Val Ala Gly Val Ala Glu Ser Asp Phe Tyr
 130 135 140
 Phe Asn Gly Phe Val Pro Pro Lys Ser Gly Glu Arg Arg Lys Leu Phe
 145 150 155 160
 Ala Lys Trp Val Arg Ala Ala Phe Pro Val Val Met Phe Glu Thr Pro
 165 170 175
 His Arg Ile Gly Ala Thr Leu Ala Asp Met Ala Glu Leu Phe Pro Glu
 180 185 190

Arg Arg Leu Met Leu Ala Arg Glu Ile Thr Lys Thr Phe Glu Thr Phe
 195 200 205

Leu Ser Gly Thr Val Gly Glu Ile Gln Thr Ala Leu Ala Ala Asp Gly
 210 215 220

Asn Gln Ser Arg Gly Glu Met Val Leu Val Leu Tyr Pro Ala Gln Asp
 225 230 235 240

Glu Lys His Glu Gly Leu Ser Glu Ser Ala Gln Asn Ala Met Lys Ile
 245 250 255

Leu Ala Ala Glu Leu Pro Thr Lys Gln Ala Ala Glu Leu Ala Ala Lys
 260 265 270

Ile Thr Gly Glu Gly Lys Lys Ala Leu Tyr Asp Leu Ala Leu Ser Trp
 275 280 285

Lys Asn Lys
 290

<210> 295
 <211> 185
 <212> DNA
 <213> Neisseria meningitidis

<400> 295
 atgaaacaga aaaaaaccgc tgccgcagtt attgctgcaa tggtggcagg ttttgccggca 60
 gcaaagcacc cgaaatcgac ccggcttttg agttggtcag aaaccagttg gagcaggggt 120
 tgagacagga aaaagcccgc ttgaaaatcg atgccctttt ggaagaaaac ggtgtcaaac 180
 cgtaa 185

<210> 296
 <211> 60
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (21)..(21)
 <223> Xaa= any amino acid

<400> 296
 Met Lys Gln Lys Lys Thr Ala Ala Ala Val Ile Ala Ala Met Leu Ala
 1 5 10 15

Gly Phe Ala Ala Xaa Lys Ala Pro Glu Ile Asp Pro Ala Leu Glu Leu
 20 25 30

Val Arg Asn Gln Leu Glu Gln Gly Leu Arg Gln Glu Lys Ala Arg Leu

35 40 45

Lys Ile Asp Ala Leu Leu Glu Glu Asn Gly Val Lys
 50 55 60

<210> 297
 <211> 759
 <212> DNA
 <213> Neisseria meningitidis

<400> 297
 atgaaacaga aaaaaaccgc tgccgcagtt attgctgcaa tgttggcagg ttttgccggca 60
 gccaaagcac ccgaaatcga cccggctttg gtggatacgc tggaggcgca gatcatgcag 120
 caggcagacc ggcatgcgga gcagtcccaa aaaccggacg ggcaggcaat ccgaaacgat 180
 gccgtccgcc ggctacaaac tttggaagtt ttgaaaaaca gggcattgaa ggaaggtttg 240
 gataaggata aggatgtcca aaaccgcttt aaaatcgccg aagcgtcttt ttatgccgag 300
 gagtacgtcc gttttctgga acgttcggaa acggtttccg aagacgagct gcacaagttt 360
 tacgaacagc aaatccgcat gatcaaattg cagcaggtca gtttcgcaac cgaagaggag 420
 gcgcgtcagg cgcagcagct cctgctcaaa gggctgtctt ttgaagggct gatgaagcgt 480
 tatccgaacg acgagcaggc ttttgacggt ttcattatgg cgcagcagct tcccagaccg 540
 ctggcttcgc agtttgccgc gatgaatcgg ggcgacgtta cccgcgatcc ggtcaaattg 600
 ggcgaacgct attatctgtt caaactcagc gaggtcggga aaaaccccga cgcgcagcct 660
 ttcgagttgg tcagaaacca gttggagcag ggtttgagac aggaaaaagc ccgcttgaaa 720
 atcgcgtccc ttttggaaga aaacggtgtc aaaccgtaa 759

<210> 298
 <211> 252
 <212> PRT
 <213> Neisseria meningitidis

<400> 298
 Met Lys Gln Lys Lys Thr Ala Ala Ala Val Ile Ala Ala Met Leu Ala
 1 5 10 15
 Gly Phe Ala Ala Lys Ala Pro Glu Ile Asp Pro Ala Leu Val Asp
 20 25 30
 Thr Leu Val Ala Gln Ile Met Gln Gln Ala Asp Arg His Ala Glu Gln
 35 40 45
 Ser Gln Lys Pro Asp Gly Gln Ala Ile Arg Asn Asp Ala Val Arg Arg
 50 55 60
 Leu Gln Thr Leu Glu Val Leu Lys Asn Arg Ala Leu Lys Glu Gly Leu
 65 70 75 80
 Asp Lys Asp Lys Asp Val Gln Asn Arg Phe Lys Ile Ala Glu Ala Ser
 85 90 95
 Phe Tyr Ala Glu Glu Tyr Val Arg Phe Leu Glu Arg Ser Glu Thr Val
 100 105 110
 Ser Glu Asp Glu Leu His Lys Phe Tyr Glu Gln Gln Ile Arg Met Ile
 115 120 125
 Lys Leu Gln Gln Val Ser Phe Ala Thr Glu Glu Glu Ala Arg Gln Ala
 130 135 140
 Gln Gln Leu Leu Leu Lys Gly Leu Ser Phe Glu Gly Leu Met Lys Arg
 145 150 155 160

Tyr Pro Asn Asp Glu Gln Ala Phe Asp Gly Phe Ile Met Ala Gln Gln
 165 170 175
 Leu Pro Glu Pro Leu Ala Ser Gln Phe Ala Ala Met Asn Arg Gly Asp
 180 185 190
 Val Thr Arg Asp Pro Val Lys Leu Gly Glu Arg Tyr Tyr Leu Phe Lys
 195 200 205
 Leu Ser Glu Val Gly Lys Asn Pro Asp Ala Gln Pro Phe Glu Leu Val
 210 215 220
 Arg Asn Gln Leu Glu Gln Gly Leu Arg Gln Glu Lys Ala Arg Leu Lys
 225 230 235 240
 Ile Asp Ala Leu Leu Glu Glu Asn Gly Val Lys Pro
 245 250

<210> 299
 <211> 759
 <212> DNA
 <213> Neisseria meningitidis

<400> 299
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 gccaaagcac ccgaaatcga cccggctttg gtggatacgc tgggtggcgca gatcatgcag 120
 caggcagacc ggcattgcgga gcagtcceaa aaaccggacg ggcaggcaat ccgaaacgat 180
 gccgtccgctc ggctgcaaac tttggaagtt ttgaaaaaca gggcattgaa ggaagggtttg 240
 gataaggata aggatgtcca aaaccgcttt aaaatcgccg aagcgtcttt ttatgccgag 300
 gagtacgtcc gttttctgga acgttcggaa acggtttccg aaagcgcact gcgtcagttt 360
 tatgagcggc aaatccgcac gatcaaattg cagcaggtca gtttcgcaac cgaagaggag 420
 gcgcgtcagg cgcagcagct cctgctcaaa gggctgtctt ttgaagggct gatgaagcgt 480
 tatccgaacg acgagcaggc ttttgacggt ttcattatgg cgcagcagct tcccagccg 540
 ctggcttcgc agtttgacgc gatgaatcgg ggcgacgtta cccgcgatcc ggtcaaattg 600
 ggcaaacgct attatctgtt caaactcagc gaggtcgagg aaaaccccgga cgcgcagcct 660
 ttcgagttgg tcagaaacca gttggaacaa ggtttgagac aggaaaaagc ccgcttgaaa 720
 atcgatgcc a ttttgggaaga aaacgggtgtc aaaccgtaa 759

<210> 300
 <211> 252
 <212> PRT
 <213> Neisseria meningitidis

<400> 300
 Met Lys Gln Lys Lys Thr Ala Ala Ala Val Ile Ala Ala Met Leu Ala
 1 5 10 15
 Gly Phe Ala Ala Ala Lys Ala Pro Glu Ile Asp Pro Ala Leu Val Asp
 20 25 30
 Thr Leu Val Ala Gln Ile Met Gln Gln Ala Asp Arg His Ala Glu Gln

.35

40

45

Ser Gln Lys Pro Asp Gly Gln Ala Ile Arg Asn Asp Ala Val Arg Arg

50	55	60
Leu Gln Thr Leu Glu Val	Leu Lys Asn Arg Ala	Leu Lys Glu Gly Leu
65	70	75 80
Asp Lys Asp Lys Asp Val	Gln Asn Arg Phe Lys	Ile Ala Glu Ala Ser
85	90	95
Phe Tyr Ala Glu Tyr Val	Arg Phe Leu Glu Arg	Ser Glu Thr Val
100	105	110
Ser Glu Ser Ala Leu Arg	Gln Phe Tyr Glu Arg	Gln Ile Arg Met Ile
115	120	125
Lys Leu Gln Gln Val Ser	Phe Ala Thr Glu Glu	Glu Ala Arg Gln Ala
130	135	140
Gln Gln Leu Leu Leu Lys	Gly Leu Ser Phe Glu	Gly Leu Met Lys Arg
145	150	155 160
Tyr Pro Asn Asp Glu Gln	Ala Phe Asp Gly Phe	Ile Met Ala Gln Gln
165	170	175
Leu Pro Glu Pro Leu Ala	Ser Gln Phe Ala Ala	Met Asn Arg Gly Asp
180	185	190
Val Thr Arg Asp Pro Val	Lys Leu Gly Glu Arg	Tyr Tyr Leu Phe Lys
195	200	205
Leu Ser Glu Val Gly Lys	Asn Pro Asp Ala Gln	Pro Phe Glu Leu Val
210	215	220
Arg Asn Gln Leu Glu Gln	Gly Leu Arg Gln Glu	Lys Ala Arg Leu Lys
225	230	235 240
Ile Asp Ala Ile Leu Glu	Glu Asn Gly Val Lys	Pro
245	250	

<210> 301
 <211> 759
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 301

atgaaacaga	aaaagaccgc	tgccgcagtt	attgctgcaa	tggtggcagg	ttttgcgga	60
gccaaagcac	ccgaaatcga	cccggtttg	gtggatacgc	tggtggcgca	gatcatgcag	120
caggcagacc	ggcatgcgga	gcagtcccaa	agaccggacg	ggcaggcaat	ccgaaacgat	180
gccgtccgcc	ggctgcaaac	tttggaagtt	ttgaaaaaca	gggcattgaa	ggaagggtttg	240
gataaggata	aggatgtcca	aaaccgcttt	aaaatcgccg	aagcgtcttt	ttatgccgag	300
gagtacgtcc	gttttctgga	acgttcggaa	acggtttccg	aaagcgcact	gcgtcagttt	360
tatgagcggc	aaatccgcac	gatcaaattg	cagcagggtca	gcttcgcaac	cgaagaggag	420
gcgcgtcagg	cgcagcagct	cctgctcaaa	ggcgtgtctt	ttgaagggct	gatgaagcgt	480
tatccgaacg	acgagcaggc	gttcgacggt	ttcattatgg	cgcagcagct	tcccgagccg	540
ctggcttcgc	agtttgccgg	tatgaaccgt	ggcgacgtta	cccgcaatcc	ggtcaaattg	600
ggcgaacgct	attacctgtt	caaactcggc	gcggtcggga	aaaaccccgga	cgcgcagcct	660

ttcgagttgg tcagaaacca gttggaacaa ggtttgaggc aggaaaaagc ccgcttgaaa
atcgatgccc ttttggaaga aaacggtgtc aaaccgtaa

720
759

<210> 302
<211> 252
<212> PRT
<213> Neisseria gonorrhoeae

<400> 302
Met Lys Gln Lys Lys Thr Ala Ala Ala Val Ile Ala Ala Met Leu Ala
1 5 10 15

Gly Phe Ala Ala Ala Lys Ala Pro Glu Ile Asp Pro Ala Leu Val Asp
20 25 30

Thr Leu Val Ala Gln Ile Met Gln Gln Ala Asp Arg His Ala Glu Gln
35 40 45

Ser Gln Arg Pro Asp Gly Gln Ala Ile Arg Asn Asp Ala Val Arg Arg
50 55 60

Leu Gln Thr Leu Glu Val Leu Lys Asn Arg Ala Leu Lys Glu Gly Leu
65 70 75 80

Asp Lys Asp Lys Asp Val Gln Asn Arg Phe Lys Ile Ala Glu Ala Ser
85 90 95

Phe Tyr Ala Glu Glu Tyr Val Arg Phe Leu Glu Arg Ser Glu Thr Val
100 105 110

Ser Glu Ser Ala Leu Arg Gln Phe Tyr Glu Arg Gln Ile Arg Met Ile
115 120 125

Lys Leu Gln Gln Val Ser Phe Ala Thr Glu Glu Glu Ala Arg Gln Ala
130 135 140

Gln Gln Leu Leu Leu Lys Gly Leu Ser Phe Glu Gly Leu Met Lys Arg
145 150 155 160

Tyr Pro Asn Asp Glu Gln Ala Phe Asp Gly Phe Ile Met Ala Gln Gln
165 170 175

Leu Pro Glu Pro Leu Ala Ser Gln Phe Ala Gly Met Asn Arg Gly Asp
180 185 190

Val Thr Arg Asn Pro Val Lys Leu Gly Glu Arg Tyr Tyr Leu Phe Lys
195 200 205

Leu Gly Ala Val Gly Lys Asn Pro Asp Ala Gln Pro Phe Glu Leu Val
210 215 220

Arg Asn Gln Leu Glu Gln Gly Leu Arg Gln Glu Lys Ala Arg Leu Lys
225 230 235 240

Ile Asp Ala Leu Leu Glu Glu Asn Gly Val Lys Pro

<210> 303
 <211> 622
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 303
 atgaaaaaat ctttccttac gcttggttctg tattcgtctt tacttaccgc cagcgaaatt 60
 gccttaccac ttggaattgg ggattgaaac cttaccggcg gcaaaaattg cggaaacgtt 120
 tgcgctgaca tttgtgattg ctgcgctgta tctgtttgcg cgtaataagg tgacgcgttt 180
 gttgattgcg gtgttttttg cgttcagcat tattgccaac aatgtgcatt acgcggtatta 240
 tcaaagctgg atgacgcaaa ccgtattcga gcagctgcaa aagactcctg acggcaactg 300
 gctgtttgccc tatacctccg atcatggcca gtatgttcgc caagatatct acaatcaagg 360
 cacggtgcag cccgacagct atctcgtgcc gctagtgttg tacagcccgg ataaggccgt 420
 gcaacagggt gccaaaccagg cttttgcgcc ttgcgagatt gccttccatc agcagctttc 480
 aacgttccctg attcacacgt tgggctaaga tatgccggtt tcaggttgtc gcgaaggctc 540
 ggtaacgggc aacctgatta cgggtgatgc aggcagcttg aacattcgcg acggcaaggc 600
 ggaatatgtt tatccgcaat ga 622

<210> 304
 <211> 206
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 304
 Met Lys Lys Ser Phe Leu Thr Leu Val Leu Tyr Ser Ser Leu Leu Thr
 1 5 10 15
 Ala Ser Glu Ile Ala Tyr Pro Leu Glu Leu Gly Ile Glu Thr Leu Pro
 20 25 30
 Ala Ala Lys Ile Ala Glu Thr Phe Ala Leu Thr Phe Val Ile Ala Ala
 35 40 45
 Leu Tyr Leu Phe Ala Arg Asn Lys Val Thr Arg Leu Leu Ile Ala Val
 50 55 60
 Phe Phe Ala Phe Ser Ile Ile Ala Asn Asn Val His Tyr Ala Asp Tyr
 65 70 75 80
 Gln Ser Trp Met Thr Gln Thr Val Phe Glu Gln Leu Gln Lys Thr Pro
 85 90 95
 Asp Gly Asn Trp Leu Phe Ala Tyr Thr Ser Asp His Gly Gln Tyr Val
 100 105 110
 Arg Gln Asp Ile Tyr Asn Gln Gly Thr Val Gln Pro Asp Ser Tyr Leu
 115 120 125
 Val Pro Leu Val Leu Tyr Ser Pro Asp Lys Ala Val Gln Gln Ala Ala
 130 135 140
 Asn Gln Ala Phe Ala Pro Cys Glu Ile Ala Phe His Gln Gln Leu Ser
 145 150 155 160

Thr Phe Leu Ile His Thr Leu Gly Tyr Asp Met Pro Val Ser Gly Cys
 165 170 175

Arg Glu Gly Ser Val Thr Gly Asn Leu Ile Thr Gly Asp Ala Gly Ser
 180 185 190

Leu Asn Ile Arg Asp Gly Lys Ala Glu Tyr Val Tyr Pro Gln
 195 200 205

<210> 305
 <211> 1575
 <212> DNA
 <213> Neisseria meningitidis

<400> 305
 atgaaaaaat ctttccttac gcttggtctg tattcgtctt tacttaccgc cagcgaaatt 60
 gcctatcgct ttgtatttgg gattgaaacc ttaccggcgg caaaaattgc ggaaacgttt 120
 gcgctgacat ttgtgattgc tgcgctgtat ctggttgccg gttataagggt gacgcgtttg 180
 ttgattgcgg tggtttttgc gttcagcatt attgccaca atgtgcatta cgcggtttat 240
 caaagctgga tgacgggcat caattattgg ctgatgctga aagagggttac cgaagtcggc 300
 agcgcgggtg cgtcgatggt ggataagttg tggtgcctg tgttggtggg cgtggtggaa 360
 gtcattgtgt tttgcagcct tgccaagttc cgcgtaaga cgcatttttc tgccgatata 420
 ctgtttgcct tcctaagtct gatgattttc gtgcgttcgt tcgacacgaa acaagagcac 480
 ggtatttcgc ccaaaccgac atacagccgc atcaaagcca attatttcag cttcggttat 540
 tttgtcggac gcgtgttgcc gtatcagttg tttgatttaa gcaggattcc cgcctttaag 600
 cagcctgctc caagcaaaat cgggcagggc agtggtcaaa atatcgctct gattatgggc 660
 gaaagcgaaa gcgcggcgca tttgaagctg tttggctacg gacgcgaaac ttcgccggtt 720
 ttaaccggc tgctgcaagc cgattttaag ccgattgtga aacaaagtta ttccgcaggc 780
 tttatgactg cagtgtccct gccagtttt ttcaatgcca taccgcacgc caacggcttg 840
 gaacaaatca gcggcgcgca taccaatatg ttccgcctcg ccaaagagca gggctatgaa 900
 acgtattttt acagcgcgca ggcggaacac gagatggcga ttttgaactt aatcggtgaag 960
 aaatggatag accatctgat tcagccgacg caacttggct acggcaacgg cgacaatatg 1020
 cccgatgaga agctgctgcc gttgttcgac aaaatcaatt tgcagcaggg caagcatttt 1080
 atcgtgttgc accaacgcgg ttcgcacgcc ccatacggcg cattgttgca gcctcaagat 1140
 aaagtattcg gcgaagccga tattgtggat aagtacgaca acaccatcca caaaaccgac 1200
 caaatgattc aaaccgtatt cgagcagctg caaagcagc ctgacggcaa ctggctgttt 1260
 gcttatacct ccgatcatgg ccagtatggt cgccaagata tctacaatca aggcacggtg 1320
 cagcccgaca gctatctcgt gccgctagtg ttgtacagcc cggataaggc cgtgcaacag 1380
 gctgccaacc aggtttttgc gccttgcgag attgccttcc atcagcagct ttcaacgttc 1440
 ctgattcaca cgttgggcta cgatatgccg gtttcagggt gtgcggaagg ctcggtaacg 1500
 ggcaacctga ttacgggtga tgcaggcagc ttgaacattc gcgacggcaa ggcggaatat 1560
 gtttatccgc aatga 1575

<210> 306
 <211> 524
 <212> PRT
 <213> Neisseria meningitidis

<400> 306
 Met Lys Lys Ser Phe Leu Thr Leu Val Leu Tyr Ser Ser Leu Leu Thr
 1 5 10 15
 Ala Ser Glu Ile Ala Tyr Arg Phe Val Phe Gly Ile Glu Thr Leu Pro
 20 25 30

Ala Ala Lys Ile Ala Glu Thr Phe Ala Leu Thr Phe Val Ile Ala Ala

35					40					45					
Leu	Tyr	Leu	Phe	Ala	Arg	Tyr	Lys	Val	Thr	Arg	Leu	Leu	Ile	Ala	Val
50						55					60				
Phe	Phe	Ala	Phe	Ser	Ile	Ile	Ala	Asn	Asn	Val	His	Tyr	Ala	Val	Tyr
65					70					75					80
Gln	Ser	Trp	Met	Thr	Gly	Ile	Asn	Tyr	Trp	Leu	Met	Leu	Lys	Glu	Val
				85					90					95	
Thr	Glu	Val	Gly	Ser	Ala	Gly	Ala	Ser	Met	Leu	Asp	Lys	Leu	Trp	Leu
			100					105					110		
Pro	Val	Leu	Trp	Gly	Val	Leu	Glu	Val	Met	Leu	Phe	Cys	Ser	Leu	Ala
		115					120					125			
Lys	Phe	Arg	Arg	Lys	Thr	His	Phe	Ser	Ala	Asp	Ile	Leu	Phe	Ala	Phe
		130				135					140				
Leu	Met	Leu	Met	Ile	Phe	Val	Arg	Ser	Phe	Asp	Thr	Lys	Gln	Glu	His
145				150						155					160
Gly	Ile	Ser	Pro	Lys	Pro	Thr	Tyr	Ser	Arg	Ile	Lys	Ala	Asn	Tyr	Phe
				165					170					175	
Ser	Phe	Gly	Tyr	Phe	Val	Gly	Arg	Val	Leu	Pro	Tyr	Gln	Leu	Phe	Asp
			180					185					190		
Leu	Ser	Arg	Ile	Pro	Ala	Phe	Lys	Gln	Pro	Ala	Pro	Ser	Lys	Ile	Gly
		195					200					205			
Gln	Gly	Ser	Val	Gln	Asn	Ile	Val	Leu	Ile	Met	Gly	Glu	Ser	Glu	Ser
	210					215					220				
Ala	Ala	His	Leu	Lys	Leu	Phe	Gly	Tyr	Gly	Arg	Glu	Thr	Ser	Pro	Phe
225					230					235					240
Leu	Thr	Arg	Leu	Ser	Gln	Ala	Asp	Phe	Lys	Pro	Ile	Val	Lys	Gln	Ser
				245					250					255	
Tyr	Ser	Ala	Gly	Phe	Met	Thr	Ala	Val	Ser	Leu	Pro	Ser	Phe	Phe	Asn
			260					265					270		
Ala	Ile	Pro	His	Ala	Asn	Gly	Leu	Glu	Gln	Ile	Ser	Gly	Gly	Asp	Thr
		275					280					285			
Asn	Met	Phe	Arg	Leu	Ala	Lys	Glu	Gln	Gly	Tyr	Glu	Thr	Tyr	Phe	Tyr
	290					295					300				
Ser	Ala	Gln	Ala	Glu	Asn	Glu	Met	Ala	Ile	Leu	Asn	Leu	Ile	Gly	Lys
305					310					315					320
Lys	Trp	Ile	Asp	His	Leu	Ile	Gln	Pro	Thr	Gln	Leu	Gly	Tyr	Gly	Asn
				325					330					335	

Gly Asp Asn Met Pro Asp Glu Lys Leu Leu Pro Leu Phe Asp Lys Ile
 340 345 350
 Asn Leu Gln Gln Gly Lys His Phe Ile Val Leu His Gln Arg Gly Ser
 355 360 365
 His Ala Pro Tyr Gly Ala Leu Leu Gln Pro Gln Asp Lys Val Phe Gly
 370 375 380
 Glu Ala Asp Ile Val Asp Lys Tyr Asp Asn Thr Ile His Lys Thr Asp
 385 390 395 400
 Gln Met Ile Gln Thr Val Phe Glu Gln Leu Gln Lys Gln Pro Asp Gly
 405 410 415
 Asn Trp Leu Phe Ala Tyr Thr Ser Asp His Gly Gln Tyr Val Arg Gln
 420 425 430
 Asp Ile Tyr Asn Gln Gly Thr Val Gln Pro Asp Ser Tyr Leu Val Pro
 435 440 445
 Leu Val Leu Tyr Ser Pro Asp Lys Ala Val Gln Gln Ala Ala Asn Gln
 450 455 460
 Ala Phe Ala Pro Cys Glu Ile Ala Phe His Gln Gln Leu Ser Thr Phe
 465 470 475 480
 Leu Ile His Thr Leu Gly Tyr Asp Met Pro Val Ser Gly Cys Arg Glu
 485 490 495
 Gly Ser Val Thr Gly Asn Leu Ile Thr Gly Asp Ala Gly Ser Leu Asn
 500 505 510
 Ile Arg Asp Gly Lys Ala Glu Tyr Val Tyr Pro Gln
 515 520

<210> 307
 <211> 1275
 <212> DNA
 <213> Neisseria meningitidis

<400> 307
 atgaaaaaat cccttttctg tctctttctg tattcgctccc tacttactgc cagcgaaatt 60
 gcttatcgct ttgtattcgg aattgaaacc ttaccggctg caaaaatggc agaaacgttt 120
 gcgctgacat ttgtgattgc tgcgctgtat ctgtttgcgc gttataaggc aacgcggtttg 180
 ttgattgcgg tgtttttcgc gttcagcatt attgccaaaca atgtgcatta cgcggtttat 240
 caaagctgga taacgggcat taattattgg ctgatgctga aagagattac cgaagttggc 300
 ggcgcgaggg cgtcgatgtt ggataagttg tggtgcctg cgttgtgggg cgtgttgga 360
 gtcattgtgt tttgcagcct tgccaagttc cgccgtaaga cgcatttttc tgccgatata 420
 ctgtttgcct tcctaattgct gatgattttc gtgcgttcgt tcgacacgaa acaagaacac 480
 ggtatttcgc ccaaaccgac atacagccgc atcaaagcca attatttcag cttcggttat 540
 tttgtcggac gcgtgttgcc gtatcagttg tttgatttaa gcaagattcc tgtgttcaaa 600
 cagcctgctc caagcagaat cgggcaaggc agtattcaaa atatcgctct gattatgggc 660
 gaaagcgaaa gcgcggcgca tttgaaattg tttggctacg ggcgcgaaac ttcgcggttt 720
 ttgacccagc tttcgcaagc cgatttttaag ccgattgtga aacaaagtta ttccgcaggc 780

tttatgacgg cagtatccct gccagtttc tttaacgtca taccgcatgc caacggcttg 840

gaacaaatca gcggcggcga tattgtggat aagtagcaca acaccatcca caaaaccgac 900
 caaatgattc aaaccgtatt cgagcagctg caaaagcagc ctgacggcaa ctggctgttt 960
 gcctatacct ccgatcatgg ccagtatgtt cgccaagata tctacaatca aggcacggtg 1020
 cagcccgaca gctatctcgt gccgctgggtg ttgtacagcc cggataaggc cgtgcaacag 1080
 gctgccaacc aggccttttgc gccttgcgag attgccttcc atcagcagct ttcaacgttc 1140
 ctgattcaca cgttgggcta cgatatgccg gtttcagggtg gtcgcaagg ctcggtaacg 1200
 ggcaacctga ttacgggtga tgcaggcagc ttgaacattc gcgacggcaa ggcggaatat 1260
 gtttatccgc aatga 1275

<210> 308
 <211> 424
 <212> PRT
 <213> Neisseria meningitidis

<400> 308
 Met Lys Lys Ser Leu Phe Val Leu Phe Leu Tyr Ser Ser Leu Leu Thr
 1 5 10 15

Ala Ser Glu Ile Ala Tyr Arg Phe Val Phe Gly Ile Glu Thr Leu Pro
 20 25 30

Ala Ala Lys Met Ala Glu Thr Phe Ala Leu Thr Phe Val Ile Ala Ala
 35 40 45

Leu Tyr Leu Phe Ala Arg Tyr Lys Ala Thr Arg Leu Leu Ile Ala Val
 50 55 60

Phe Phe Ala Phe Ser Ile Ile Ala Asn Asn Val His Tyr Ala Val Tyr
 65 70 75 80

Gln Ser Trp Ile Thr Gly Ile Asn Tyr Trp Leu Met Leu Lys Glu Ile
 85 90 95

Thr Glu Val Gly Gly Ala Gly Ala Ser Met Leu Asp Lys Leu Trp Leu
 100 105 110

Pro Ala Leu Trp Gly Val Leu Glu Val Met Leu Phe Cys Ser Leu Ala
 115 120 125

Lys Phe Arg Arg Lys Thr His Phe Ser Ala Asp Ile Leu Phe Ala Phe
 130 135 140

Leu Met Leu Met Ile Phe Val Arg Ser Phe Asp Thr Lys Gln Glu His
 145 150 155 160

Gly Ile Ser Pro Lys Pro Thr Tyr Ser Arg Ile Lys Ala Asn Tyr Phe
 165 170 175

Ser Phe Gly Tyr Phe Val Gly Arg Val Leu Pro Tyr Gln Leu Phe Asp
 180 185 190

Leu Ser Lys Ile Pro Val Phe Lys Gln Pro Ala Pro Ser Arg Ile Gly
 195 200 205

Gln Gly Ser Ile Gln Asn Ile Val Leu Ile Met Gly Glu Ser Glu Ser
 210 215 220

Ala Ala His Leu Lys Leu Phe Gly Tyr Gly Arg Glu Thr Ser Pro Phe
 225 230 235 240

Leu Thr Gln Leu Ser Gln Ala Asp Phe Lys Pro Ile Val Lys Gln Ser
 245 250 255

Tyr Ser Ala Gly Phe Met Thr Ala Val Ser Leu Pro Ser Phe Phe Asn
 260 265 270

Val Ile Pro His Ala Asn Gly Leu Glu Gln Ile Ser Gly Gly Asp Ile
 275 280 285

Val Asp Lys Tyr Asp Asn Thr Ile His Lys Thr Asp Gln Met Ile Gln
 290 295 300

Thr Val Phe Glu Gln Leu Gln Lys Gln Pro Asp Gly Asn Trp Leu Phe
 305 310 315 320

Ala Tyr Thr Ser Asp His Gly Gln Tyr Val Arg Gln Asp Ile Tyr Asn
 325 330 335

Gln Gly Thr Val Gln Pro Asp Ser Tyr Leu Val Pro Leu Val Leu Tyr
 340 345 350

Ser Pro Asp Lys Ala Val Gln Gln Ala Ala Asn Gln Ala Phe Ala Pro
 355 360 365

Cys Glu Ile Ala Phe His Gln Gln Leu Ser Thr Phe Leu Ile His Thr
 370 375 380

Leu Gly Tyr Asp Met Pro Val Ser Gly Cys Arg Glu Gly Ser Val Thr
 385 390 395 400

Gly Asn Leu Ile Thr Gly Asp Ala Gly Ser Leu Asn Ile Arg Asp Gly
 405 410 415

Lys Ala Glu Tyr Val Tyr Pro Gln
 420

<210> 309
 <211> 1575
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 309
 atgaaaaaat cccttttcgt tctctttctg tattcatccc tacttaccgc cagcgaaatc 60
 gcctatcgct ttgtattcgg aattgaaacc ttaccggctg caaaaatggc ggaaacggtt 120
 gcgctgacat ttatgattgc tgcgctgtat ctggttgccg gttataaggc ttcgcggctg 180
 ctgattgcgg tgtttttcgc gttcagcatg attgccaaca atgtgcatta cgcgggttat 240
 caaagctgga tgacgggtat taactattgg ctgatgctga aagagggtac cgaagtcggc 300
 agcgcggggc cgtcgatgtt ggataagttg tggtgcctg ctttgtgggg cgtggcgga 360
 gtcattgtt tttgcagcct tgccaagttc cgcgctaaga cgcatttttc tgccgatata 420
 ctgtttgcct tcctaagtct gatgattttc gtgcgttcgt tcgacacgaa acaagagcac 480

ggatatttcgc	ccaaaccgac	atacagccgc	atcaaagcca	attattttcag	cttcgggttat	540
tttgtcgggc	gcgtggttgc	gtatcagttg	tttgatttaa	gcaagatccc	tgtgttcaaa	600
cagcctgctc	caagcaaaat	cgggcaaggc	agtattcaaa	atatcgtcct	gattatgggc	660

gaaagcgaaa	gcgcgggcgca	tttgaaattg	tttggttacg	ggcgcgaaac	ttcgccgttt	720
ttaaccgggc	tgctcgcaagc	cgatttttaag	ccgattgtga	aacaaagtta	ttccgcaggc	780
tttatgacgg	cagtatccct	gcccagtttc	tttaacgtca	taccgcacgc	caacggcttg	840
gaacaaatca	gcgggcggcga	taccaatatg	ttccgcctcg	ccaaagagca	gggctatgaa	900
acgtatTTTT	acagtgccca	ggctgaaaac	caaattggcaa	ttttgaactt	aatcggttaag	960
aaatggatag	accatctgat	tcagccgacg	caacttggct	acggcaacgg	cgacaatatg	1020
cccgatgaga	agctgctgcc	gttggttcgac	aaaatcaatt	tgacgcaggg	caggcatttt	1080
atcgtgttgc	accaacgcgg	ttcgcacgcc	ccatacggcg	cattgttgca	gcctcaagat	1140
aaagtattcg	gcgaagccga	tattgtggat	aagtacgaca	acaccatcca	caaaaccgac	1200
caaatgattc	aaaccgtatt	cgagcagctg	caaaagcagc	ctgacggcaa	ctggctgttt	1260
gcctatacct	ccgatcatgg	ccagtatgtg	cgccaagata	tctacaatca	aggcacgggtg	1320
cagccccgaca	gctatattgt	gcctctgggt	ttgtacagcc	cggataaggc	cgtgcaacag	1380
gctgccaacc	aggcttttgc	gccttgcgag	attgccttcc	atcagcagct	ttcaacgttc	1440
ctgattcaca	cggtgggcta	cgatatgccg	gtttcagggt	gtcgcggaagg	ctcggttaaca	1500
ggcaacctga	ttacgggcga	tgcaggcagc	ttgaacattc	gcaacggcaa	ggcggaatat	1560
gtttatccgc	aataa					1575

<210> 310
 <211> 524
 <212> PRT
 <213> *Neisseria gonorrhoeae*

<400> 310
 Met Lys Lys Ser Leu Phe Val Leu Phe Leu Tyr Ser Ser Leu Leu Thr
 1 5 10 15
 Ala Ser Glu Ile Ala Tyr Arg Phe Val Phe Gly Ile Glu Thr Leu Pro
 20 25 30
 Ala Ala Lys Met Ala Glu Thr Phe Ala Leu Thr Phe Met Ile Ala Ala
 35 40 45
 Leu Tyr Leu Phe Ala Arg Tyr Lys Ala Ser Arg Leu Leu Ile Ala Val
 50 55 60
 Phe Phe Ala Phe Ser Met Ile Ala Asn Asn Val His Tyr Ala Val Tyr
 65 70 75 80
 Gln Ser Trp Met Thr Gly Ile Asn Tyr Trp Leu Met Leu Lys Glu Val
 85 90 95
 Thr Glu Val Gly Ser Ala Gly Ala Ser Met Leu Asp Lys Leu Trp Leu
 100 105 110
 Pro Ala Leu Trp Gly Val Ala Glu Val Met Leu Phe Cys Ser Leu Ala
 115 120 125
 Lys Phe Arg Arg Lys Thr His Phe Ser Ala Asp Ile Leu Phe Ala Phe
 130 135 140
 Leu Met Leu Met Ile Phe Val Arg Ser Phe Asp Thr Lys Gln Glu His
 145 150 155 160

Gly	Ile	Ser	Pro	Lys	Pro	Thr	Tyr	Ser	Arg	Ile	Lys	Ala	Asn	Tyr	Phe	
				165					170					175		
Ser	Phe	Gly	Tyr	Phe	Val	Gly	Arg	Val	Leu	Pro	Tyr	Gln	Leu	Phe	Asp	
			180					185					190			
Leu	Ser	Lys	Ile	Pro	Val	Phe	Lys	Gln	Pro	Ala	Pro	Ser	Lys	Ile	Gly	
		195					200					205				
Gln	Gly	Ser	Ile	Gln	Asn	Ile	Val	Leu	Ile	Met	Gly	Glu	Ser	Glu	Ser	
	210					215					220					
Ala	Ala	His	Leu	Lys	Leu	Phe	Gly	Tyr	Gly	Arg	Glu	Thr	Ser	Pro	Phe	
225					230					235					240	
Leu	Thr	Arg	Leu	Ser	Gln	Ala	Asp	Phe	Lys	Pro	Ile	Val	Lys	Gln	Ser	
			245						250					255		
Tyr	Ser	Ala	Gly	Phe	Met	Thr	Ala	Val	Ser	Leu	Pro	Ser	Phe	Phe	Asn	
			260					265					270			
Val	Ile	Pro	His	Ala	Asn	Gly	Leu	Glu	Gln	Ile	Ser	Gly	Gly	Asp	Thr	
		275					280					285				
Asn	Met	Phe	Arg	Leu	Ala	Lys	Glu	Gln	Gly	Tyr	Glu	Thr	Tyr	Phe	Tyr	
	290					295					300					
Ser	Ala	Gln	Ala	Glu	Asn	Gln	Met	Ala	Ile	Leu	Asn	Leu	Ile	Gly	Lys	
305					310					315					320	
Lys	Trp	Ile	Asp	His	Leu	Ile	Gln	Pro	Thr	Gln	Leu	Gly	Tyr	Gly	Asn	
				325					330					335		
Gly	Asp	Asn	Met	Pro	Asp	Glu	Lys	Leu	Leu	Pro	Leu	Phe	Asp	Lys	Ile	
			340					345					350			
Asn	Leu	Gln	Gln	Gly	Arg	His	Phe	Ile	Val	Leu	His	Gln	Arg	Gly	Ser	
		355					360					365				
His	Ala	Pro	Tyr	Gly	Ala	Leu	Leu	Gln	Pro	Gln	Asp	Lys	Val	Phe	Gly	
	370					375					380					
Glu	Ala	Asp	Ile	Val	Asp	Lys	Tyr	Asp	Asn	Thr	Ile	His	Lys	Thr	Asp	
385					390					395					400	
Gln	Met	Ile	Gln	Thr	Val	Phe	Glu	Gln	Leu	Gln	Lys	Gln	Pro	Asp	Gly	
				405					410					415		
Asn	Trp	Leu	Phe	Ala	Tyr	Thr	Ser	Asp	His	Gly	Gln	Tyr	Val	Arg	Gln	
		420						425					430			
Asp	Ile	Tyr	Asn	Gln	Gly	Thr	Val	Gln	Pro	Asp	Ser	Tyr	Ile	Val	Pro	
		435					440					445				

Leu Val Leu Tyr Ser Pro Asp Lys Ala Val Gln Gln Ala Ala Asn Gln
 450 455 460

Ala Phe Ala Pro Cys Glu Ile Ala Phe His Gln Gln Leu Ser Thr Phe
 465 470 475 480

Leu Ile His Thr Leu Gly Tyr Asp Met Pro Val Ser Gly Cys Arg Glu
 485 490 495

Gly Ser Val Thr Gly Asn Leu Ile Thr Gly Asp Ala Gly Ser Leu Asn
 500 505 510

Ile Arg Asn Gly Lys Ala Glu Tyr Val Tyr Pro Gln
 515 520

<210> 311
 <211> 590
 <212> DNA
 <213> Neisseria meningitidis

<400> 311
 accctgctcc tcttcacccc cctcgctctc acacgtgcgg cacactgacc ggcatactcg 60
 cccacggcgg cggcaaacgc ttgcccgtcg aacaagaact cgtcgccgca tcgtcccgcg 120
 ccgcccgtcaa agaaatggat ttgtccgccc taaaaggacg caaagccgcc ytttacgtct 180
 ccgttatggg cgaccaaggt tcgggcaaca taagcggcgg acgctactct atcgacgcac 240
 tgatacgcgg cggctaccac aacaaccccc aaagtgccac ccaatacagc taccgccct 300
 acgacactac cgccaccacc aaatccgacg cgctctccag cgtaaccact tccacatcgc 360
 ttttgaacgc ccccgccgcc gcytgacga aaaacagcgg acgcaaaggc gaacgctccg 420
 ccggactgtc cgtcaacggc acgggcgact accgcaacga aacctgtct gcccaaccccc 480
 gcgacgtttc cttcctgacc aaacctcatc aaaccgtctt ctacctgcgc ggcacgaag 540
 tcgtaccgcc cgratacgcc gacaccgacg tattcgtaac cgtcgacgta 590

<210> 312
 <211> 197
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (12)..(12)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (58)..(58)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (128)..(128)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (185)..(185)
 <223> Xaa= any amino acid

<400> 312

Thr Leu Leu Leu Phe Ile Pro Leu Val Leu Thr Xaa Cys Gly Thr Leu
1 5 10 15

Thr Gly Ile Leu Ala His Gly Gly Gly Lys Arg Phe Ala Val Glu Gln

20

25

30

Glu Leu Val Ala Ala Ser Ser Arg Ala Ala Val Lys Glu Met Asp Leu
35 40 45

Ser Ala Leu Lys Gly Arg Lys Ala Ala Xaa Tyr Val Ser Val Met Gly
50 55 60

Asp Gln Gly Ser Gly Asn Ile Ser Gly Gly Arg Tyr Ser Ile Asp Ala
65 70 75 80

Leu Ile Arg Gly Gly Tyr His Asn Asn Pro Glu Ser Ala Thr Gln Tyr
85 90 95

Ser Tyr Pro Ala Tyr Asp Thr Thr Ala Thr Thr Lys Ser Asp Ala Leu
100 105 110

Ser Ser Val Thr Thr Ser Thr Ser Leu Leu Asn Ala Pro Ala Ala Xaa
115 120 125

Leu Thr Lys Asn Ser Gly Arg Lys Gly Glu Arg Ser Ala Gly Leu Ser
130 135 140

Val Asn Gly Thr Gly Asp Tyr Arg Asn Glu Thr Leu Leu Ala Asn Pro
145 150 155 160

Arg Asp Val Ser Phe Leu Thr Asn Leu Ile Gln Thr Val Phe Tyr Leu
165 170 175

Arg Gly Ile Glu Val Val Pro Pro Xaa Tyr Ala Asp Thr Asp Val Phe
180 185 190

Val Thr Val Asp Val
195

<210> 313

<211> 942

<212> DNA

<213> Neisseria meningitidis

<400> 313

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tcccgcgccg	ccgtcaaaga	aatggatttg	tccgccctaa	aaggacgcaa	agccgccctt	180
tacgtctccg	ttatggggcg	ccaaggttcg	ggcaacataa	gcggcggacg	ctactctatc	240
gacgcactga	tacgcggcgg	ctaccacaac	aaccccgaaa	gtgccaccca	atacagctac	300
cccgccctacg	acactaccgc	caccaccaaa	tccgacgcgc	tctccagcgt	aaccattcc	360
acatcgcttt	tgaacgcccc	cgccgcccgc	ctgacgaaaa	acagcggacg	caaaggcgaa	420
cgctccgcgcg	gactgtccgt	caacggcacg	ggcgactacc	gcaacgaaac	cctgctcgcc	480

aacccccgcg	acgtttcctt	cctgaccaac	ctcatccaaa	ccgtcttcta	cctgcgcggc	540
atcgaagtcg	taccgcccga	atacgccgac	accgacgtat	tcgtaaccgt	cgacgtattc	600
ggcaccgtcc	gcagccgtac	cgaactgcac	ctctacaacg	ccgaaaccct	taaagcccaa	660
accaagctcg	aatatttcgc	cgttgaccgc	gacagccgga	aactgctgat	taccctataa	720
accgccgcct	acgaatccca	ataccaagaa	caatacgccc	tttgaccggg	cccttacaaa	780
gtcagcaaaa	ccgtcaaagc	ctcagaccgc	ctgatggtcg	atttctccga	cattaccccc	840
tacggcgaca	caaccgccc	aaaccgtccc	gacttcaaac	aaaacaacgg	taaaaaaccc	900

gatgtcggca	acgaagtcac	ccgccgccgc	aaaggaggat	aa	942
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<210> 314
 <211> 313
 <212> PRT
 <213> Neisseria meningitidis

<400> 314
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 Thr Leu Thr Gly Ile Pro Ala His Gly Gly Gly Lys Arg Phe Ala Val
 20 25 30
 Glu Gln Glu Leu Val Ala Ala Ser Ser Arg Ala Ala Val Lys Glu Met
 35 40 45
 Asp Leu Ser Ala Leu Lys Gly Arg Lys Ala Ala Leu Tyr Val Ser Val
 50 55 60
 Met Gly Asp Gln Gly Ser Gly Asn Ile Ser Gly Gly Arg Tyr Ser Ile
 65 70 75 80
 Asp Ala Leu Ile Arg Gly Gly Tyr His Asn Asn Pro Glu Ser Ala Thr
 85 90 95
 Gln Tyr Ser Tyr Pro Ala Tyr Asp Thr Thr Ala Thr Thr Lys Ser Asp
 100 105 110
 Ala Leu Ser Ser Val Thr Thr Ser Thr Ser Leu Leu Asn Ala Pro Ala
 115 120 125
 Ala Ala Leu Thr Lys Asn Ser Gly Arg Lys Gly Glu Arg Ser Ala Gly
 130 135 140
 Leu Ser Val Asn Gly Thr Gly Asp Tyr Arg Asn Glu Thr Leu Leu Ala
 145 150 155 160
 Asn Pro Arg Asp Val Ser Phe Leu Thr Asn Leu Ile Gln Thr Val Phe
 165 170 175
 Tyr Leu Arg Gly Ile Glu Val Val Pro Pro Glu Tyr Ala Asp Thr Asp
 180 185 190
 Val Phe Val Thr Val Asp Val Phe Gly Thr Val Arg Ser Arg Thr Glu
 195 200 205
 Leu His Leu Tyr Asn Ala Glu Thr Leu Lys Ala Gln Thr Lys Leu Glu

210 215 220
 Tyr Phe Ala Val Asp Arg Asp Ser Arg Lys Leu Leu Ile Thr Pro Lys
 225 230 235 240
 Thr Ala Ala Tyr Glu Ser Gln Tyr Gln Glu Gln Tyr Ala Leu Trp Thr
 245 250 255
 Gly Pro Tyr Lys Val Ser Lys Thr Val Lys Ala Ser Asp Arg Leu Met
 260 265 270
 Val Asp Phe Ser Asp Ile Thr Pro Tyr Gly Asp Thr Thr Ala Gln Asn
 275 280 285
 Arg Pro Asp Phe Lys Gln Asn Asn Gly Lys Lys Pro Asp Val Gly Asn
 290 295 300
 Glu Val Ile Arg Arg Arg Lys Gly Gly
 305 310

<210> 315
 <211> 942
 <212> DNA
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature
 <222> (16)..(16)
 <223> N= Unknown

<400> 315
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 ataccgccc acggcggcgg caaacgcttt gccgtcgaac aagaactcgt cgccgcatcg 120
 tcccgcgccg ccgtcaaaga aatggacttg tccgccctga aaggacgcaa agccgccctt 180
 tacgtctccg ttatgggcca ccaagggtcg ggcaacataa gcggcggaag ctactctatc 240
 gacgcactga tacgcggcgg ctaccacaac aaccccgaaa gtgccacca atacagctac 300
 cccgcctacg aactaccgc caccacaaa tccgacgcgc tctccagcgt aaccacttcc 360
 acatcgcttt tgaacgcccc cgccgcgcgc ctgacgaaaa acagcggacg caaaggcgaa 420
 cgctccgccc gactgtccgt caacggcacg ggcgactacc gcaacgaaac cctgctcgcc 480
 aacccccgcg acgtttcctt cctgaccaac ctcatcaaaa ccgtcttcta cctgcgcggc 540
 atcgaagtcg taccgcccga atacgcccga accgacgtat tcgtaaccgt cgacgtattc 600
 ggcaccgtcc gcagccgcac cgaactgcac ctctacaacg ccgaaaccct taaagcccaa 660
 accaagctcg aatatttcgc cggtgaccgc gacagccgga aactgctgat tgcccctaaa 720
 accgcccgtt acgaatccca ataccaagaa caatacgccc tctggatggg accttacagc 780
 gtcggcaaaa ccgtcaaagc ctacagaccgc ctgatggctg atttctccga catcaccccc 840
 tacggcgaca caaccgccc aaaccgtccc gacttcaaac aaaacaacgg taaaaaaccc 900
 gatgtcggca acgaagtcac ccgcgcgcgc aaaggaggat aa 942

<210> 316
 <211> 313
 <212> PRT
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature

<222> (6)..(6)

<223> Xaa= any amino acid

<400> 316

Met Lys Thr Leu Leu Xaa Leu Ile Pro Leu Val Leu Thr Ala Cys Gly
1 5 10 15

Thr Leu Thr Gly Ile Pro Ala His Gly Gly Gly Lys Arg Phe Ala Val
20 25 30

Glu Gln Glu Leu Val Ala Ala Ser Ser Arg Ala Ala Val Lys Glu Met
35 40 45

Asp Leu Ser Ala Leu Lys Gly Arg Lys Ala Ala Leu Tyr Val Ser Val
50 55 60

Met Gly Asp Gln Gly Ser Gly Asn Ile Ser Gly Gly Arg Tyr Ser Ile
65 70 75 80

Asp Ala Leu Ile Arg Gly Gly Tyr His Asn Asn Pro Glu Ser Ala Thr
85 90 95

Gln Tyr Ser Tyr Pro Ala Tyr Asp Thr Thr Ala Thr Thr Lys Ser Asp
100 105 110

Ala Leu Ser Ser Val Thr Thr Ser Thr Ser Leu Leu Asn Ala Pro Ala
115 120 125

Ala Ala Leu Thr Lys Asn Ser Gly Arg Lys Gly Glu Arg Ser Ala Gly
130 135 140

Leu Ser Val Asn Gly Thr Gly Asp Tyr Arg Asn Glu Thr Leu Leu Ala
145 150 155 160

Asn Pro Arg Asp Val Ser Phe Leu Thr Asn Leu Ile Gln Thr Val Phe
165 170 175

Tyr Leu Arg Gly Ile Glu Val Val Pro Pro Glu Tyr Ala Asp Thr Asp
180 185 190

Val Phe Val Thr Val Asp Val Phe Gly Thr Val Arg Ser Arg Thr Glu
195 200 205

Leu His Leu Tyr Asn Ala Glu Thr Leu Lys Ala Gln Thr Lys Leu Glu
210 215 220

Tyr Phe Ala Val Asp Arg Asp Ser Arg Lys Leu Leu Ile Ala Pro Lys
225 230 235 240

Thr Ala Ala Tyr Glu Ser Gln Tyr Gln Glu Gln Tyr Ala Leu Trp Met
245 250 255

Gly Pro Tyr Ser Val Gly Lys Thr Val Lys Ala Ser Asp Arg Leu Met
260 265 270

Val Asp Phe Ser Asp Ile Thr Pro Tyr Gly Asp Thr Thr Ala Gln Asn

275 280 285

Arg Pro Asp Phe Lys Gln Asn Asn Gly Lys Lys Pro Asp Val Gly Asn
290 295 300

Glu Val Ile Arg Arg Arg Lys Gly Gly
305 310

<210> 317
<211> 942

<212> DNA
<213> *Neisseria gonorrhoeae*

<400> 317
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ataccgccc acggcggcgg caaacgcttt gccgtcgaac aggaactcgt cgccgcatcg 120
tcccgcgccg ccgtcaaaga aatggacttg tccgccctga aaggacgcaa agccgccctt 180
tacgtctccg ttatgggcga ccaagggttcg ggcaacataa gcggcgggacg ctactccatc 240
gacgcactga tacgcggcgg ctaccacaac aacccccgaca gcgccaccgc atacagctac 300
cccgccctatg acactaccgc caccaccaa tccgacgcgc tctccggcgt aaccacttcc 360
acatcgcttt tgaacgcccc cgccgcccgc ctgacgaaaa acaacggacg caaaggcgaa 420
cgctccgccc gactgtccgt caacggcacg ggcgactacc gcaacgaaac cctgctcgcc 480
aacccccgcg acgtttcctt cctgaccaac ctcatccaaa ccgtcttcta cctgcgcggc 540
atcgaagtcg taccgcccga atacgcccgc accgacgtat tcgtaaccgt cgacgtattc 600
ggcaccgtcc gcagccgtac cgaactgcac ctctacaacg ccgaaaccct taaagcccaa 660
accaagctcg aatatttcgc cgtcgaccgc gacagccgga aactgctgat tgcccctaaa 720
accgcccgtc acgaatccca ataccaagaa caatacgcgc tctggatggg accttacagc 780
gtcggcaaaa ccgtcaaagc ctacgaccgc ctgatggctg atttctccga catcaccccc 840
tacggcgaca caaccgcccc aaaccgtccc gacttcaaac aaaacaacgcg taaaaacccc 900
gatgtcggca acgaagtcac ccgcccgcgc aaaggaggat aa 942

<210> 318
<211> 313
<212> PRT
<213> *Neisseria gonorrhoeae*

<400> 318
Met Lys Thr Leu Leu Leu Leu Ile Pro Leu Val Leu Thr Ala Cys Gly
1 5 10 15
Thr Leu Thr Gly Ile Pro Ala His Gly Gly Gly Lys Arg Phe Ala Val
20 25 30
Glu Gln Glu Leu Val Ala Ala Ser Ser Arg Ala Ala Val Lys Glu Met
35 40 45
Asp Leu Ser Ala Leu Lys Gly Arg Lys Ala Ala Leu Tyr Val Ser Val
50 55 60
Met Gly Asp Gln Gly Ser Gly Asn Ile Ser Gly Gly Arg Tyr Ser Ile
65 70 75 80
Asp Ala Leu Ile Arg Gly Gly Tyr His Asn Asn Pro Asp Ser Ala Thr
85 90 95

Arg Tyr Ser Tyr Pro Ala Tyr Asp Thr Thr Ala Thr Thr Lys Ser Asp
100 105 110

Ala Leu Ser Gly Val Thr Thr Ser Thr Ser Leu Leu Asn Ala Pro Ala
115 120 125

Ala Ala Leu Thr Lys Asn Asn Gly Arg Lys Gly Glu Arg Ser Ala Gly
130 135 140

Leu Ser Val Asn Gly Thr Gly Asp Tyr Arg Asn Glu Thr Leu Leu Ala
145 150 155 160

Asn Pro Arg Asp Val Ser Phe Leu Thr Asn Leu Ile Gln Thr Val Phe
165 170 175

Tyr Leu Arg Gly Ile Glu Val Val Pro Pro Glu Tyr Ala Asp Thr Asp
180 185 190

Val Phe Val Thr Val Asp Val Phe Gly Thr Val Arg Ser Arg Thr Glu
195 200 205

Leu His Leu Tyr Asn Ala Glu Thr Leu Lys Ala Gln Thr Lys Leu Glu
210 215 220

Tyr Phe Ala Val Asp Arg Asp Ser Arg Lys Leu Leu Ile Ala Pro Lys
225 230 235 240

Thr Ala Ala Tyr Glu Ser Gln Tyr Gln Glu Gln Tyr Ala Leu Trp Met
245 250 255

Gly Pro Tyr Ser Val Gly Lys Thr Val Lys Ala Ser Asp Arg Leu Met
260 265 270

Val Asp Phe Ser Asp Ile Thr Pro Tyr Gly Asp Thr Thr Ala Gln Asn
275 280 285

Arg Pro Asp Phe Lys Gln Asn Asn Gly Lys Asn Pro Asp Val Gly Asn
290 295 300

Glu Val Ile Arg Arg Arg Lys Gly Gly
305 310

<210> 319
<211> 1191
<212> DNA
<213> Neisseria meningitidis

<400> 319
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tttacgaaca taaaaggctt gaaaataccg cacacctaca tagaaacgga cgcaaaaaag 180
ctgccgaat cgacagatga gcagctttcg gcgcatgata tgtacgaatg gataaagaag 240
cccgaataa tcgggtctat tgctattgta gatgaagctc aagacgtatg gccggcacgc 300
tcggcagggt caaaaatccc tgaaaatgtc caatggctga atacgcacag acatcagggc 360
attgatatat ttgttttgac tcaaggctcct aagcttctag atcaaaatct tagaacgctt 420
gtacggaaac attaccacat cgcttcaaac aagatgggta tgcgtacgct tttagaatgg 480

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aaaatatgcg cggacgatcc cgtaaaaatg gcatcaagcg cattctccag tatctataca 540
ctggataaaa aagtttatga cttgtaysrr tmmgcggaag ttcataaccgt aaataaggtc 600
aagcgggtcaa agtgggttta cactctgcca gtaatagtat tgctgattcc cgtgtttgtc 660
ggcctgtcct ataaaatgtt gagcagttac ggaaaaaac aggaagaacc cgcagcacia 720
gaatcggcgg caacagaaca gcaggcagta cttccggata aaacagaagg cgagccggta 780
aataacggca accttaccgc agatatgttt gttccgacat tgtccgaaaa acccgraagc 840
aagccgattt ataacggtgt aaggcaggta agaacctttg aatatatagc aggctgtata 900
gaaggcggaa gaaccggatg cgcctgctat tgcgcatcaag ggacggcatt gaaagaagtg 960
acggagttga tgtgccaaagg actatgtaaa aaacggcttg ccgtttaacc catacaaaga 1020
agaaagccaa gggcaggaag ttcagcaaag cgcgcagcaa cattcggaca gggcgccaag 1080
ttgccacatt gggcggaaaa ccgtagcaga acctaatgta cgataattgg gaagaacgcg 1140
ggaaaccggt tgaaggaatc ggacgggggc gtggtcggat cggcaaactg a 1191

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<210> 320
<211> 395
<212> PRT
<213> Neisseria meningitidis

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<220>
<221> misc_feature
<222> (190)..(191)
<223> Xaa= any amino acid

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<220>
<221> misc_feature
<222> (279)..(279)
<223> Xaa= any amino acid

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<220>
<221> misc_feature
<222> (368)..(368)
<223> Xaa= any amino acid

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<400> 320
Met Ala Glu Ile Cys Leu Ile Thr Gly Thr Pro Gly Ser Gly Lys Thr
1          5          10          15

Leu Lys Met Val Ser Met Met Ala Asn Asp Glu Met Phe Lys Pro Asp
20        25        30

Glu Lys Ala Ile Arg Arg Lys Val Phe Thr Asn Ile Lys Gly Leu Lys
35        40        45

Ile Pro His Thr Tyr Ile Glu Thr Asp Ala Lys Lys Leu Pro Lys Ser
50        55        60

Thr Asp Glu Gln Leu Ser Ala His Asp Met Tyr Glu Trp Ile Lys Lys
65        70        75        80

Pro Glu Asn Ile Gly Ser Ile Val Ile Val Asp Glu Ala Gln Asp Val
85        90        95

Trp Pro Ala Arg Ser Ala Gly Ser Lys Ile Pro Glu Asn Val Gln Trp
100       105       110

Leu Asn Thr His Arg His Gln Gly Ile Asp Ile Phe Val Leu Thr Gln

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115					120					125						
Gly	Pro	Lys	Leu	Leu	Asp	Gln	Asn	Leu	Arg	Thr	Leu	Val	Arg	Lys	His	
130					135					140						
Tyr	His	Ile	Ala	Ser	Asn	Lys	Met	Gly	Met	Arg	Thr	Leu	Leu	Glu	Trp	
145					150					155					160	
Lys	Ile	Cys	Ala	Asp	Asp	Pro	Val	Lys	Met	Ala	Ser	Ser	Ala	Phe	Ser	
165					170					175						
Ser	Ile	Tyr	Thr	Leu	Asp	Lys	Lys	Val	Tyr	Asp	Leu	Tyr	Xaa	Xaa	Ala	
180					185					190						
Glu	Val	His	Thr	Val	Asn	Lys	Val	Lys	Arg	Ser	Lys	Trp	Phe	Tyr	Thr	
195					200					205						
Leu	Pro	Val	Ile	Val	Leu	Leu	Ile	Pro	Val	Phe	Val	Gly	Leu	Ser	Tyr	
210					215					220						
Lys	Met	Leu	Ser	Ser	Tyr	Gly	Lys	Lys	Gln	Glu	Glu	Pro	Ala	Ala	Gln	
225					230					235					240	
Glu	Ser	Ala	Ala	Thr	Glu	Gln	Gln	Ala	Val	Leu	Pro	Asp	Lys	Thr	Glu	
245					250					255						
Gly	Glu	Pro	Val	Asn	Asn	Gly	Asn	Leu	Thr	Ala	Asp	Met	Phe	Val	Pro	
260					265					270						
Thr	Leu	Ser	Glu	Lys	Pro	Xaa	Ser	Lys	Pro	Ile	Tyr	Asn	Gly	Val	Arg	
275					280					285						
Gln	Val	Arg	Thr	Phe	Glu	Tyr	Ile	Ala	Gly	Cys	Ile	Glu	Gly	Gly	Arg	
290					295					300						
Thr	Gly	Cys	Ala	Cys	Tyr	Ser	His	Gln	Gly	Thr	Ala	Leu	Lys	Glu	Val	
305					310					315					320	
Thr	Glu	Leu	Met	Cys	Lys	Asp	Tyr	Val	Lys	Asn	Gly	Leu	Pro	Phe	Asn	
325					330					335						
Pro	Tyr	Lys	Glu	Glu	Ser	Gln	Gly	Gln	Glu	Val	Gln	Gln	Ser	Ala	Gln	
340					345					350						
Gln	His	Ser	Asp	Arg	Ala	Gln	Val	Ala	Thr	Leu	Gly	Gly	Lys	Pro	Xaa	
355					360					365						
Gln	Asn	Leu	Met	Tyr	Asp	Asn	Trp	Glu	Glu	Arg	Gly	Lys	Pro	Phe	Glu	
370					375					380						
Gly	Ile	Gly	Gly	Gly	Val	Val	Gly	Ser	Ala	Asn						
385					390					395						
<210> 321																
<211> 1188																
<212> DNA																

<213> Neisseria meningitidis

<400> 321

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tttacgaaca	taaaaggctt	gaaaataccg	cacacctaca	tagaaacgga	cgcaaaaaag	180
ctgccgaaat	cgacagatga	gcagctttcg	gcgcatgata	tgtacgaatg	gataaagaag	240
cccgaata	tcgggtctat	tgtcattgta	gatgaagctc	aagacgtatg	gccggcacgc	300
tcggcaggtt	caaaaatccc	tgaaaatgtc	caatggctga	atacgcacag	acatcagggc	360
attgatatat	ttgttttgac	tcaaggctct	aagcttctag	atcaaaatct	tagaacgctt	420
gtacggaaac	attaccacat	cgcttcaaac	aagatgggta	tgcgtagcgt	tttagaatgg	480
aaaatatgcg	cggacgatcc	cgtaaaaaatg	gcataaagcg	cattctccag	tatctataca	540
ctggataaaa	aagtttatga	cttgtagcaa	tcagcggaag	ttcataccgt	aaataaggtc	600
aagcgggcaa	agtgggttta	cactctgcc	gtaatagtat	tgctgattcc	cgtgtttgtc	660

ggcctgtcct	ataaaatggt	gagcagttac	ggaaaaaac	aggaagaacc	cgcagcacaa	720
gaatcggcgg	caacagaaca	gcaggcagta	cttccggata	aaacagaagg	cgagccggta	780
aaatacggca	accttaccgc	agatatgttt	gttccgacat	tgtccgaaaa	acccgaaagc	840
aagccgattt	ataacggtgt	aaggcaggta	agaacctttg	aatatatagc	aggctgtata	900
gaaggcggaa	gaaccggatg	cgctgtctat	tcgcatcaag	ggacggcatt	gaaagaagtg	960
acggagttga	tgtgcaagga	ctatgtaaaa	aacggcttgc	cgtttaaccc	atacaaagaa	1020
gaaagccaag	ggcaggaagt	tcagcaaagc	gcgcagcaac	attcgacag	ggcgcaagtt	1080
gccacattgg	gcggaaaacc	gtagcagaac	ctaattgtacg	ataattggga	agaacgcggg	1140
aaaccgtttg	aaggaatcgg	cgggggcggtg	gtcggatcgg	caaactga		1188

<210> 322

<211> 394

<212> PRT

<213> Neisseria meningitidis

<400> 322

Met	Ala	Glu	Ile	Cys	Leu	Ile	Thr	Gly	Thr	Pro	Gly	Ser	Gly	Lys	Thr
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Leu	Lys	Met	Val	Ser	Met	Met	Ala	Asn	Asp	Glu	Met	Phe	Lys	Pro	Asp
			20					25					30		
Glu	Asn	Gly	Ile	Arg	Arg	Lys	Val	Phe	Thr	Asn	Ile	Lys	Gly	Leu	Lys
		35					40					45			
Ile	Pro	His	Thr	Tyr	Ile	Glu	Thr	Asp	Ala	Lys	Lys	Leu	Pro	Lys	Ser
		50					55				60				
Thr	Asp	Glu	Gln	Leu	Ser	Ala	His	Asp	Met	Tyr	Glu	Trp	Ile	Lys	Lys
65					70					75				80	
Pro	Glu	Asn	Ile	Gly	Ser	Ile	Val	Ile	Val	Asp	Glu	Ala	Gln	Asp	Val
			85						90					95	
Trp	Pro	Ala	Arg	Ser	Ala	Gly	Ser	Lys	Ile	Pro	Glu	Asn	Val	Gln	Trp
		100						105					110		
Leu	Asn	Thr	His	Arg	His	Gln	Gly	Ile	Asp	Ile	Phe	Val	Leu	Thr	Gln
		115					120					125			
Gly	Pro	Lys	Leu	Leu	Asp	Gln	Asn	Leu	Arg	Thr	Leu	Val	Arg	Lys	His

130 135 140
 Tyr His Ile Ala Ser Asn Lys Met Gly Met Arg Thr Leu Leu Glu Trp
 145 150 155 160
 Lys Ile Cys Ala Asp Asp Pro Val Lys Met Ala Ser Ser Ala Phe Ser
 165 170 175
 Ser Ile Tyr Thr Leu Asp Lys Lys Val Tyr Asp Leu Tyr Glu Ser Ala
 180 185 190
 Glu Val His Thr Val Asn Lys Val Lys Arg Ser Lys Trp Phe Tyr Thr
 195 200 205
 Leu Pro Val Ile Val Leu Leu Ile Pro Val Phe Val Gly Leu Ser Tyr

210 215 220
 Lys Met Leu Ser Ser Tyr Gly Lys Lys Gln Glu Glu Pro Ala Ala Gln
 225 230 235 240
 Glu Ser Ala Ala Thr Glu Gln Gln Ala Val Leu Pro Asp Lys Thr Glu
 245 250 255
 Gly Glu Pro Val Asn Asn Gly Asn Leu Thr Ala Asp Met Phe Val Pro
 260 265 270
 Thr Leu Ser Glu Lys Pro Glu Ser Lys Pro Ile Tyr Asn Gly Val Arg
 275 280 285
 Gln Val Arg Thr Phe Glu Tyr Ile Ala Gly Cys Ile Glu Gly Gly Arg
 290 295 300
 Thr Gly Cys Ala Cys Tyr Ser His Gln Gly Thr Ala Leu Lys Glu Val
 305 310 315 320
 Thr Glu Leu Met Cys Lys Asp Tyr Val Lys Asn Gly Leu Pro Phe Asn
 325 330 335
 Pro Tyr Lys Glu Glu Ser Gln Gly Gln Glu Val Gln Gln Ser Ala Gln
 340 345 350
 Gln His Ser Asp Arg Ala Gln Val Ala Thr Leu Gly Gly Lys Pro Gln
 355 360 365
 Asn Leu Met Tyr Asp Asn Trp Glu Glu Arg Gly Lys Pro Phe Glu Gly
 370 375 380
 Ile Gly Gly Gly Val Val Gly Ser Ala Asn
 385 390

<210> 323
 <211> 1188
 <212> DNA
 <213> Neisseria meningitidis

<400> 323

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tttacgaaca	tcaaaggctt	gaagataccg	cacacctaca	tagaaacgga	cgcgaaaaag	180
ctgccgaaat	cgacagatga	gcagctttcg	gcgcagtata	tgtacgaatg	gataaagaag	240
cccgaaaata	tcggttctat	tgtcattgta	gatgaagctc	aagacgtatg	gccggcacgc	300
tccgcagggt	caaaaatccc	tgaaaatgtc	caatggctga	atacgcacag	acatcagggc	360
attgatatat	ttgttttgac	tcaaggctct	aagcttctag	atcaaaatct	tagaacgctt	420
gtacggaaac	attaccacat	cgcttcaaac	aagatgggta	tgcgtacgct	tttagaatgg	480
aaaatatgcg	cggacgatcc	cgtaaaaatg	gcataaagcg	cattctccag	tatctataca	540
ctggataaaa	aagtttatga	cttgtacgaa	tcagcgggaag	ttcataccgt	aaataaggtc	600
aagcgggtcaa	aatggtttta	tactctgcca	gtaataatat	tgctgattcc	cgtttttgtc	660
ggcctgtcct	ataaaatggt	aagtagttat	ggaaaaaaac	aggaagaacc	cgcagcacia	720
gaatcggcgg	caacagaaca	tcaggcagta	tttcaggata	aaacagaagg	cgaagccggt	780
aacaacggta	accttaccgc	agatatgttt	gttccgacat	tgtccgaaaa	acccgaaagc	840
aagccgattt	ataacggtgt	aaggcaggta	agaacctttg	aatatatagc	aggctgtgta	900

gaaggcggaa	gaaccggatg	cacatgctat	tgcatacaag	ggacggcatt	gaaagaaatt	960
acaaaggaaa	tgtgcaagga	ttacgcaaga	aacggattgc	cgtttaaccc	atataaagaa	1020
gaaagccaag	ggcgggatgt	ccagcaaagt	gagcagcacc	attcggacag	accgcaagtt	1080
gccacgttgg	gcggaaagcc	gtggcaaaat	cttatgtatg	ataattggca	ggagcgcgga	1140
aaaccgtttg	aaggaatcgg	cgggggcgtg	gtcggatcgg	caaactga		1188

<210> 324

<211> 395

<212> PRT

<213> *Neisseria meningitidis*

<400> 324

Met	Ala	Glu	Ile	Cys	Leu	Ile	Thr	Gly	Thr	Pro	Gly	Ser	Gly	Lys	Thr
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Leu	Lys	Met	Val	Ser	Met	Met	Ala	Asn	Asp	Glu	Met	Phe	Lys	Pro	Asp
			20					25					30		
Glu	Asn	Gly	Ile	Arg	Arg	Lys	Val	Phe	Thr	Asn	Ile	Lys	Gly	Leu	Lys
		35					40					45			
Ile	Pro	His	Thr	Tyr	Ile	Glu	Thr	Asp	Ala	Lys	Lys	Leu	Pro	Lys	Ser
	50					55					60				
Thr	Asp	Glu	Gln	Leu	Ser	Ala	His	Asp	Met	Tyr	Glu	Trp	Ile	Lys	Lys
65				70					75					80	
Pro	Glu	Asn	Ile	Gly	Ser	Ile	Val	Ile	Val	Asp	Glu	Ala	Gln	Asp	Val
			85					90						95	
Trp	Pro	Ala	Arg	Ser	Ala	Gly	Ser	Lys	Ile	Pro	Glu	Asn	Val	Gln	Trp
		100						105					110		
Leu	Asn	Thr	His	Arg	His	Gln	Gly	Ile	Asp	Ile	Phe	Val	Leu	Thr	Gln
		115					120					125			
Gly	Ser	Lys	Leu	Leu	Asp	Gln	Asn	Leu	Arg	Thr	Leu	Val	Arg	Lys	His
	130						135					140			

Tyr His Ile Ala Ser Asn Lys Met Gly Met Arg Thr Leu Leu Glu Trp
 145 150 155 160
 Lys Ile Cys Ala Asp Asp Pro Val Lys Met Ala Ser Ser Ala Phe Ser
 165 170 175
 Ser Ile Tyr Thr Leu Asp Lys Lys Val Tyr Asp Leu Tyr Glu Ser Ala
 180 185 190
 Glu Val His Thr Val Asn Lys Val Lys Arg Ser Lys Trp Phe Tyr Thr
 195 200 205
 Leu Pro Val Ile Ile Leu Leu Ile Pro Val Phe Val Gly Leu Ser Tyr
 210 215 220
 Lys Met Leu Ser Ser Tyr Gly Lys Lys Gln Glu Glu Pro Ala Ala Gln
 225 230 235 240
 Glu Ser Ala Ala Thr Glu His Gln Ala Val Phe Gln Asp Lys Thr Glu
 245 250 255
 Gly Glu Pro Val Asn Asn Gly Asn Leu Thr Ala Asp Met Phe Val Pro
 260 265 270
 Thr Leu Ser Glu Lys Pro Glu Ser Lys Pro Ile Tyr Asn Gly Val Arg
 275 280 285
 Gln Val Arg Thr Phe Glu Tyr Ile Ala Gly Cys Val Glu Gly Gly Arg
 290 295 300
 Thr Gly Cys Thr Cys Tyr Ser His Gln Gly Thr Ala Leu Lys Glu Ile
 305 310 315 320
 Thr Lys Glu Met Cys Lys Asp Tyr Ala Arg Asn Gly Leu Pro Phe Asn
 325 330 335
 Pro Tyr Lys Glu Glu Ser Gln Gly Arg Asp Val Gln Gln Ser Glu Gln
 340 345 350
 His His Ser Asp Arg Pro Gln Val Ala Thr Leu Gly Gly Lys Pro Trp
 355 360 365
 Gln Asn Leu Met Tyr Asp Asn Trp Gln Glu Arg Gly Lys Pro Phe Glu
 370 375 380
 Gly Ile Gly Gly Gly Val Val Gly Ser Ala Asn
 385 390 395

<210> 325

<211> 1188

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 325

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tttacgaaca	tcaaaggttt	gaagataccg	cacacccaca	tagaaacaga	cgcaaagaag	180
ctgccgaaat	caaccgatga	acagctttcg	gcgcatgata	tgtatgaatg	gatcaagaag	240
cctgaaaacg	tcggcgcaat	cgttattgtc	gatgaggcgc	aagacgtatg	gcccgcacgc	300
tccgcagggt	cgaaaatccc	cgaaaacgtc	caatggctga	acacacacag	gcatcagggc	360
atagatatat	ttgtattgac	acaaggtcct	aaactcttag	atcagaactt	gcgaacattg	420
gttaaaagac	attaccacat	tgcggccaac	aaaatgggtt	tgcgtagcct	gcttgaatgg	480
aaagtatgcg	cggatgaccc	ggtaaaaatg	gcatcaagtg	cattttccag	tatctacaca	540
ctggataaaa	aagtttatga	cttgtacgaa	tccgcagaaa	ttcacacggt	aaacaaagtc	600
aagcgttcaa	aatggtttta	tgcattgccc	gtcatcatat	tattgattcc	gctatttgtc	660
ggtttgtcct	acaaaatggt	gggcagttac	ggaaaaaaac	aggaagaacc	cgcagcacaa	720
gaatcggcgg	caacagaaca	gcaggcagta	cttccggata	aaacagaagg	agaatcggtg	780
aataacggaa	accttacggc	agatatgttt	gttccgacat	tgcccgaaaa	acccgaaagc	840
aagccgattt	ataacggtgt	aaggcaggta	aggacctttg	aatatatagc	aggctgtata	900
gaaggcggaa	gaaccggatg	cacctgctat	tgcgcatcaag	ggacggcatt	gaaagaagtg	960
acggagttga	tgtgcaagga	ctatgtaaaa	aacggcttgc	cgtttaaccc	atacaagaa	1020
gaaagccaag	ggcaggaagt	tcagcaaagc	gcgcagcaac	attcggacag	ggcgcaagtt	1080
gccaccttgg	gcggaaaacc	gcagcagaac	ctaattgtacg	acaattggga	agaacgcggg	1140
aaaccgtttg	aaggaatcgg	cgggggcgtg	gtcggatcgg	caaactga		1188

<210> 326
 <211> 395
 <212> PRT
 <213> *Neisseria gonorrhoeae*

<400> 326
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 Leu Lys Met Val Ser Met Met Ala Asn Asp Glu Met Phe Lys Pro Asp
 20 25 30
 Glu Asn Gly Val Arg Arg Lys Val Phe Thr Asn Ile Lys Gly Leu Lys
 35 40 45
 Ile Pro His Thr His Ile Glu Thr Asp Ala Lys Lys Leu Pro Lys Ser
 50 55 60
 Thr Asp Glu Gln Leu Ser Ala His Asp Met Tyr Glu Trp Ile Lys Lys
 65 70 75 80
 Pro Glu Asn Val Gly Ala Ile Val Ile Val Asp Glu Ala Gln Asp Val
 85 90 95
 Trp Pro Ala Arg Ser Ala Gly Ser Lys Ile Pro Glu Asn Val Gln Trp
 100 105 110
 Leu Asn Thr His Arg His Gln Gly Ile Asp Ile Phe Val Leu Thr Gln
 115 120 125
 Gly Pro Lys Leu Leu Asp Gln Asn Leu Arg Thr Leu Val Lys Arg His
 130 135 140
 Tyr His Ile Ala Ala Asn Lys Met Gly Leu Arg Thr Leu Leu Glu Trp
 145 150 155 160
 Lys Val Cys Ala Asp Asp Pro Val Lys Met Ala Ser Ser Ala Phe Ser

165	170	175
Ser Ile Tyr Thr Leu Asp Lys Lys Val Tyr Asp Leu Tyr Glu Ser Ala		
180	185	190
Glu Ile His Thr Val Asn Lys Val Lys Arg Ser Lys Trp Phe Tyr Ala		
195	200	205
Leu Pro Val Ile Ile Leu Leu Ile Pro Leu Phe Val Gly Leu Ser Tyr		
210	215	220
Lys Met Leu Gly Ser Tyr Gly Lys Lys Gln Glu Glu Pro Ala Ala Gln		
225	230	235
Glu Ser Ala Ala Thr Glu Gln Gln Ala Val Leu Pro Asp Lys Thr Glu		
245	250	255
Gly Glu Ser Val Asn Asn Gly Asn Leu Thr Ala Asp Met Phe Val Pro		
260	265	270
Thr Leu Pro Glu Lys Pro Glu Ser Lys Pro Ile Tyr Asn Gly Val Arg		
275	280	285
Gln Val Arg Thr Phe Glu Tyr Ile Ala Gly Cys Ile Glu Gly Gly Arg		
290	295	300
Thr Gly Cys Thr Cys Tyr Ser His Gln Gly Thr Ala Leu Lys Glu Val		
305	310	315
Thr Glu Leu Met Cys Lys Asp Tyr Val Lys Asn Gly Leu Pro Phe Asn		
325	330	335
Pro Tyr Lys Glu Glu Ser Gln Gly Gln Glu Val Gln Gln Ser Ala Gln		
340	345	350
Gln His Ser Asp Arg Ala Gln Val Ala Thr Leu Gly Gly Lys Pro Gln		
355	360	365
Gln Asn Leu Met Tyr Asp Asn Trp Glu Glu Arg Gly Lys Pro Phe Glu		
370	375	380
Gly Ile Gly Gly Gly Val Val Gly Ser Ala Asn		
385	390	395

<210> 327
 <211> 1091
 <212> DNA
 <213> Neisseria meningitidis

<400> 327
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 attgaagtga cggacaaggc aaccggtgag aaactcgagc gcaccatccg cgtgaaccat 180
 cctttgacct tgcacggcat cagcatttat caggcgagtt ttgccgacgg cggttcggat 240
 ttgacattca aggcgtggaa tttgggtgat gcttcgcgcg agcctgtcgt gttgaaggca 300
 acatccatac accagtttcc gttggaaatt ggcaaacaca aatatcgtct tgagttcgat 360

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cagttcactt ctatgaatgt ggaggacatg agcgagggcg cggaacggga aaaaagcctg 420
aaatccacgc tgcccgatgt ccgcgcggtt actcaggaag gtcacaaata caccaattac 480
cgtatccgtg atgcgccagg ccaggcggtc gaataataaaa actatatgct gccgggtttg 540
caggaacagg attatttttg gattaccggc acgcgcagcg cttgcagcag caataccgct 600
ggctgcgtat ccccttggac aagcagttga aagcggacac ctttatggca ttgcgtgagt 660
ttttgaaaga tggggaaggg cgcaaacgtc tgttgccgac gcaaccaaag gcgcacctgc 720
cgaaatccgc gaacaattca tgctggctgc ggaaaacacg ctgaacatct ttgcacaaaa 780
aggctatttg ggattggacg aatttattac gtccaatatc ccgaaagagc agcaggataa 840
gatgcagggc tatttctacg aaatgcttta cggcgtgatg aacgctgctt tggatgaaac 900
catacccggt acggcttgcc cgaatggcag caggatgaag cgcggaatcg tttcctgctg 960
cacagtatgg atgcgtacac gggtttgacc gaatatcccg cgcctatgct gctgcaactt 1020
gatgggtttt ccgaggtgcg ttcgtcgggt ttgcagatga cccgttcccc ggtecgtttt 1080
tggtctatct c 1091

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<210> 328
<211> 371
<212> PRT
<213> Neisseria meningitidis

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<220>

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<222> (160)..(165)
<223> Xaa= any amino acid

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<220>

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<221> misc_feature
<222> (200)..(200)
<223> Xaa= any amino acid

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<220>

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<221> misc_feature
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<223> Xaa= any amino acid

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<220>

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<221> misc_feature
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<223> Xaa= any amino acid

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<220>

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<221> misc_feature
<222> (364)..(364)
<223> Xaa= any amino acid

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<400> 328

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Met Val Phe Leu Asn Ala Asp Asn Gly Ile Leu Val Gln Asp Leu Pro
1          5          10          15

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Phe Glu Val Lys Leu Lys Lys Phe His Ile Asp Phe Tyr Asn Thr Gly
          20          25          30

```

```

Met Pro Arg Asp Phe Ala Ser Asp Ile Glu Val Thr Asp Lys Ala Thr
          35          40          45

```

```

Gly Glu Lys Leu Glu Arg Thr Ile Arg Val Asn His Pro Leu Thr Leu

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50	55	60
His Gly Ile Thr Ile Tyr Gln Ala Ser Phe Ala Asp Gly Gly Ser Asp		
65	70	75 80
Leu Thr Phe Lys Ala Trp Asn Leu Gly Asp Ala Ser Arg Glu Pro Val		
	85	90 95
Val Leu Lys Ala Thr Ser Ile His Gln Phe Pro Leu Glu Ile Gly Lys		
	100	105 110
His Lys Tyr Arg Leu Glu Phe Asp Gln Phe Thr Ser Met Asn Val Glu		
	115	120 125
Asp Met Ser Glu Gly Ala Glu Arg Glu Lys Ser Leu Lys Ser Thr Leu		
	130	135 140
Pro Asp Val Arg Ala Val Thr Gln Glu Gly His Lys Tyr Thr Asn Xaa		
	145	150 155 160
Xaa Xaa Xaa Xaa Xaa Tyr Arg Ile Arg Asp Ala Pro Gly Gln Ala Val		
	165	170 175
Glu Tyr Lys Asn Tyr Met Leu Pro Val Leu Gln Glu Gln Asp Tyr Phe		
	180	185 190
Trp Ile Thr Gly Thr Arg Ser Xaa Leu Gln Gln Gln Tyr Arg Trp Leu		
	195	200 205
Arg Ile Pro Leu Asp Lys Gln Leu Lys Ala Asp Thr Phe Met Ala Leu		
	210	215 220
Arg Glu Phe Leu Lys Asp Gly Glu Gly Arg Lys Arg Xaa Val Ala Asp		
	225	230 235 240
Ala Thr Lys Gly Ala Pro Ala Glu Ile Arg Glu Gln Phe Met Leu Ala		
	245	250 255
Ala Glu Asn Thr Leu Asn Ile Phe Ala Gln Lys Gly Tyr Leu Gly Leu		
	260	265 270
Asp Glu Phe Ile Thr Ser Asn Ile Pro Lys Glu Gln Gln Asp Lys Met		
	275	280 285
Gln Gly Tyr Phe Tyr Glu Met Leu Tyr Gly Val Met Asn Ala Ala Leu		
	290	295 300
Asp Glu Thr Xaa Thr Arg Tyr Gly Leu Pro Glu Trp Gln Gln Asp Glu		
	305	310 315 320
Ala Arg Asn Arg Phe Leu Leu His Ser Met Asp Ala Tyr Thr Gly Leu		
	325	330 335
Thr Glu Tyr Pro Ala Pro Met Leu Leu Gln Leu Asp Gly Phe Ser Glu		
	340	345 350

Val Arg Ser Ser Gly Leu Gln Met Thr Arg Ser Xaa Gly Pro Leu Leu
 355 360 365

Val Tyr Leu
 370

<210> 329
 <211> 2016
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 329
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 tccatgcgct ttgcagtcgc tttgctcagt ctgctgggta ttgcatcggg tatcgggtacg 120
 gtgttgacgc aaaaccagcc gcagacggat tatttggtca aattcggatc gttttgggag 180
 cagatttttg gttttctggg actgtatgac gtctatgctt cggcatgggt tgctggtatc 240
 atgatgtttt tgggtggttc taccagtttg tgctgattc gcaatgtgcc gccgttctgg 300
 cgcgaaatga agtcttttcg ggaaaagggt aaagaaaaat ctctggcggc gatgcgccat 360
 tcttcgctgt tggatgtaaa aattgcgccc gaggttgcca aacgttatct ggaagtacaa 420
 gggttttcagg gaaaaaccat taaccgtgaa gacgggtcgg ttctgattgc cgccaaaaaa 480
 ggcacaatga acaaatgggg ctatatcttt gcccatggtt ctttgattgt catttgcttg 540

ggcggggtga tagacagtaa cctgctgttg aaactgggta tgctgaccgg tcggattggt 600
 ccggacaatc aggcgggtta tgccaaggat ttcaagcccg aaagtatttt ggggtgcgtcc 660
 aatctctcat ttaggggcaa cgtcaatatt tccgaggggc agagtgcgga tgtgggtttc 720
 ctgaatgccg acaacgggat attggttcag gacttgctt ttgaagtcaa actgaaaaaa 780
 ttccatatcg atttttacaa tacgggtatg ccgcgtgatt tcgccagcga tattgaagtg 840
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 aaggcgtgga atttgggtga tgcttcgcgc gagcctgtcg tgttgaaggc aacatccata 1020
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 tctatgaatg tggaggacat gagcgagggc gcggaacggg aaaaaagcct gaaatccacg 1140
 ctgaacgatg tccgcgccgt tactcaggaa ggtaaaaaat acaccaatat cggcccttcc 1200
 attgtttacc gtatccgtga tgccggcagg caggcggctg aatataaaaa ctatatgctg 1260
 ccggttttgc aggaacagga ttatttttgg attaccggca cgcgcagcgg cttgcagcag 1320
 caataccgct ggctgcgtat ccccttggac aagcagttga aagcggacac ctttatggca 1380
 ttgcgtgagt ttttgaaaga tggggaaggc cgcaaacgtc tgggtgccga cgcaaccaa 1440
 ggcgcacctg ccgaaatccg cgaacaattc atgctggctg cggaaaacac gctgaacatc 1500
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 cagcaggata agatgcaggg ctatttctac gaaatgcttt acggcgtgat gaacgctgct 1620
 ttggatgaaa ccatacgccg gtacggcttg cccgaatggc agcaggatga agcgcggaat 1680
 cgtttcctgc tgcacagtat ggatgcgtac acgggtttga ccgaatatcc cgcgcctatg 1740
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 ccgggtgcgc ttttggtcta tctcggctcg gtgctgttg tattgggtac ggtattgatg 1860
 ttttatgtgc gcgaaaaacg ggcgtgggta ttgttttcag acggcaaaat ccgttttgcc 1920
 atgtcttcgg ccgcgagcga acgggatttg cagaaggaat ttccaaaaca cgtcgagagt 1980
 ctgcaacggc tcggcaagga cttgaatcat gactga 2016

<210> 330
 <211> 671
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 330
 Met Ser Lys Ser Arg Arg Ser Pro Pro Leu Leu Ser Arg Pro Trp Phe

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Gly Ile Ala Ser Val Ile Gly Thr Val Leu Gln Gln Asn Gln Pro Gln	35	40	45
Thr Asp Tyr Leu Val Lys Phe Gly Ser Phe Trp Ala Gln Ile Phe Gly	50	55	60
Phe Leu Gly Leu Tyr Asp Val Tyr Ala Ser Ala Trp Phe Val Val Ile	65	70	75
Met Met Phe Leu Val Val Ser Thr Ser Leu Cys Leu Ile Arg Asn Val	85	90	95
Pro Pro Phe Trp Arg Glu Met Lys Ser Phe Arg Glu Lys Val Lys Glu	100	105	110
Lys Ser Leu Ala Ala Met Arg His Ser Ser Leu Leu Asp Val Lys Ile	115	120	125
Ala Pro Glu Val Ala Lys Arg Tyr Leu Glu Val Gln Gly Phe Gln Gly	130	135	140
Lys Thr Ile Asn Arg Glu Asp Gly Ser Val Leu Ile Ala Ala Lys Lys	145	150	155
Gly Thr Met Asn Lys Trp Gly Tyr Ile Phe Ala His Val Ala Leu Ile	165	170	175
Val Ile Cys Leu Gly Gly Leu Ile Asp Ser Asn Leu Leu Leu Lys Leu	180	185	190
Gly Met Leu Thr Gly Arg Ile Val Pro Asp Asn Gln Ala Val Tyr Ala	195	200	205
Lys Asp Phe Lys Pro Glu Ser Ile Leu Gly Ala Ser Asn Leu Ser Phe	210	215	220
Arg Gly Asn Val Asn Ile Ser Glu Gly Gln Ser Ala Asp Val Val Phe	225	230	235
Leu Asn Ala Asp Asn Gly Ile Leu Val Gln Asp Leu Pro Phe Glu Val	245	250	255
Lys Leu Lys Lys Phe His Ile Asp Phe Tyr Asn Thr Gly Met Pro Arg	260	265	270
Asp Phe Ala Ser Asp Ile Glu Val Thr Asp Lys Ala Thr Gly Glu Lys	275	280	285
Leu Glu Arg Thr Ile Arg Val Asn His Pro Leu Thr Leu His Gly Ile	290	295	300

Thr Ile Tyr Gln Ala Ser Phe Ala Asp Gly Gly Ser Asp Leu Thr Phe
 305 310 315 320
 Lys Ala Trp Asn Leu Gly Asp Ala Ser Arg Glu Pro Val Val Leu Lys
 325 330 335
 Ala Thr Ser Ile His Gln Phe Pro Leu Glu Ile Gly Lys His Lys Tyr
 340 345 350
 Arg Leu Glu Phe Asp Gln Phe Thr Ser Met Asn Val Glu Asp Met Ser
 355 360 365
 Glu Gly Ala Glu Arg Glu Lys Ser Leu Lys Ser Thr Leu Asn Asp Val
 370 375 380
 Arg Ala Val Thr Gln Glu Gly Lys Lys Tyr Thr Asn Ile Gly Pro Ser
 385 390 395 400
 Ile Val Tyr Arg Ile Arg Asp Ala Ala Gly Gln Ala Val Glu Tyr Lys
 405 410 415
 Asn Tyr Met Leu Pro Val Leu Gln Glu Gln Asp Tyr Phe Trp Ile Thr
 420 425 430
 Gly Thr Arg Ser Gly Leu Gln Gln Gln Tyr Arg Trp Leu Arg Ile Pro
 435 440 445
 Leu Asp Lys Gln Leu Lys Ala Asp Thr Phe Met Ala Leu Arg Glu Phe
 450 455 460
 Leu Lys Asp Gly Glu Gly Arg Lys Arg Leu Val Ala Asp Ala Thr Lys
 465 470 475 480
 Gly Ala Pro Ala Glu Ile Arg Glu Gln Phe Met Leu Ala Ala Glu Asn
 485 490 495
 Thr Leu Asn Ile Phe Ala Gln Lys Gly Tyr Leu Gly Leu Asp Glu Phe
 500 505 510
 Ile Thr Ser Asn Ile Pro Lys Glu Gln Gln Asp Lys Met Gln Gly Tyr
 515 520 525
 Phe Tyr Glu Met Leu Tyr Gly Val Met Asn Ala Ala Leu Asp Glu Thr
 530 535 540
 Ile Arg Arg Tyr Gly Leu Pro Glu Trp Gln Gln Asp Glu Ala Arg Asn
 545 550 555 560
 Arg Phe Leu Leu His Ser Met Asp Ala Tyr Thr Gly Leu Thr Glu Tyr
 565 570 575
 Pro Ala Pro Met Leu Leu Gln Leu Asp Gly Phe Ser Glu Val Arg Ser
 580 585 590
 Ser Gly Leu Gln Met Thr Arg Ser Pro Gly Ala Leu Leu Val Tyr Leu

595 600 605

Gly Ser Val Leu Leu Val Leu Gly Thr Val Leu Met Phe Tyr Val Arg
610 615 620

Glu Lys Arg Ala Trp Val Leu Phe Ser Asp Gly Lys Ile Arg Phe Ala
625 630 635 640

Met Ser Ser Ala Arg Ser Glu Arg Asp Leu Gln Lys Glu Phe Pro Lys
645 650 655

His Val Glu Ser Leu Gln Arg Leu Gly Lys Asp Leu Asn His Asp
660 665 670

<210> 331
<211> 2016
<212> DNA
<213> Neisseria meningitidis

<400> 331

atgagtaa	at	cccgtagatc	tccccactt	ctttcccgtc	cgtgggttcgc	ttttttcagc	60
tccatgcgct	ttgcggtcgc	tttgctcagt	ctgctgggta	ttgcatcggt	tatcggtacg		120
gtgttgcagc	aaaaccagcc	gcagacggat	tatttggtca	aattcggatc	gttttgggcg		180
cagatttttg	gttttctggg	actgtatgac	gtctatgctt	cggcatgggt	tgctcgttatc		240
atgatgtttt	tggtgggttc	taccagtttg	tgcttgattc	gcaatgtgcc	gccgttctgg		300
cgcgaaatga	agtcttttcg	ggaaaagggt	aaagaaaaat	ctctggcggc	gatgcgccat		360
tcttcgctgt	tggatgtaaa	aattgcgccc	gaggttgcca	aacgttatct	ggaagtacaa		420
ggttttcagg	gaaaaacat	taaccgtgaa	gacgggtcgc	ttctgattgc	cgccaaaaaa		480
ggcacaatga	acaaatgggg	ctatatcttt	gccccatgtt	ctttgattgt	catttgccctg		540
ggcggggtga	tagacagtaa	cctgctgttg	aaactgggta	tgctgaccgg	tcggattggt		600
ccggacaatc	aggcggttta	tgccaaggat	ttcaagcccg	aaagtatttt	gggtgcgtcc		660
aatctctcat	ttaggggcaa	cgtcaatatt	tccgaggggc	agagtgcgga	tgtggttttc		720
ctgaatgcgc	acaacgggat	attggttcag	gacttgcctt	ttgaagtcaa	actgaaaaaa		780
ttccatateg	atttttacaa	tacgggtatg	ccgcgcgatt	ttgccagtga	tattgaagta		840
acggataagg	caaccgggtg	gaaactcgag	cgcaccatcc	gcgtgaacca	tcctttgacc		900
ttgcacggca	tcacgattta	tcaggcgagt	tttgccgacg	gcggttcgga	tttgacattc		960
aaggcgtgga	atttgggtga	tgcttcgcgc	gagcctgtcg	tggtgaaggc	aacatccata		1020
caccagtttc	cgttggaaat	tggaacacac	aaatatcgtc	ttgagttcga	tcagtttact		1080
tctatgaatg	tggaggacat	gagcgagggc	gcggaacggg	aaaaaagcct	gaaatccacg		1140
ctgaacgatg	tccgcgccgt	tactcaggaa	ggtaaaaaat	acaccaatat	cggcccttcc		1200
attgtttacc	gtatccgtga	tgcggcaggg	caggcggtcg	aatataaaaa	ctatatgctg		1260
ccggttttgc	aggaacagga	ttatttttgg	attaccggca	cgcgcagcgc	cttgccagcag		1320
caataccgct	ggctgcgtat	ccccttggac	aagcagttga	aagcggacac	ctttatggca		1380
ttgcgtgagt	ttttgaaaga	tggggaaggg	cgaaaacgtc	tggttgccga	cgcaacccaa		1440
ggcgcacctg	ccgaaatccg	cgaacaattc	atgctggctg	cggaaaacac	gctgaacatc		1500
tttgacacaa	aaggctat	gggattggac	gaatttatta	cgtccaatat	cccgaagag		1560
cagcaggata	agatgcaggg	ctatttctac	gaaatgcttt	acggcgtgat	gaacgctgct		1620
ttggatgaaa	ccatacgccg	gtacggcttg	cccgaatggc	agcaggatga	agcgcggaat		1680
cgtttctctg	tgacagtat	ggatgcgtac	acgggtttga	ccgaatatcc	cgcgcctatg		1740
ctgctgcaac	ttgatgggtt	ttccgaggtg	cgttcgtcgc	gtttgcagat	gacccgttcc		1800
ccgggtgcgc	ttttgggtct	tctcggtctg	gtgctgttgg	tattgggtac	ggtatttgag		1860
ttttatgtgc	gcgaaaaacg	ggcgtgggta	tgttttccag	acggcaaaat	ccgttttgcc		1920
atgtcttcgg	cccgcagcga	acgggatttg	cagaaggaaat	ttccaaaaca	cgctcgagagt		1980
ctgcaacggc	tcggcaagga	cttgaatcat	gactga				2016

<210> 332
 <211> 671
 <212> PRT
 <213> Neisseria meningitidis

<400> 332
 Met Ser Lys Ser Arg Arg Ser Pro Pro Leu Leu Ser Arg Pro Trp Phe
 1 5 10 15
 Ala Phe Phe Ser Ser Met Arg Phe Ala Val Ala Leu Leu Ser Leu Leu
 20 25 30
 Gly Ile Ala Ser Val Ile Gly Thr Val Leu Gln Gln Asn Gln Pro Gln
 35 40 45
 Thr Asp Tyr Leu Val Lys Phe Gly Ser Phe Trp Ala Gln Ile Phe Gly
 50 55 60
 Phe Leu Gly Leu Tyr Asp Val Tyr Ala Ser Ala Trp Phe Val Val Ile
 65 70 75 80
 Met Met Phe Leu Val Val Ser Thr Ser Leu Cys Leu Ile Arg Asn Val
 85 90 95
 Pro Pro Phe Trp Arg Glu Met Lys Ser Phe Arg Glu Lys Val Lys Glu
 100 105 110
 Lys Ser Leu Ala Ala Met Arg His Ser Ser Leu Leu Asp Val Lys Ile
 115 120 125
 Ala Pro Glu Val Ala Lys Arg Tyr Leu Glu Val Gln Gly Phe Gln Gly
 130 135 140
 Lys Thr Ile Asn Arg Glu Asp Gly Ser Val Leu Ile Ala Ala Lys Lys
 145 150 155 160
 Gly Thr Met Asn Lys Trp Gly Tyr Ile Phe Ala His Val Ala Leu Ile
 165 170 175
 Val Ile Cys Leu Gly Gly Leu Ile Asp Ser Asn Leu Leu Leu Lys Leu
 180 185 190
 Gly Met Leu Thr Gly Arg Ile Val Pro Asp Asn Gln Ala Val Tyr Ala
 195 200 205
 Lys Asp Phe Lys Pro Glu Ser Ile Leu Gly Ala Ser Asn Leu Ser Phe
 210 215 220
 Arg Gly Asn Val Asn Ile Ser Glu Gly Gln Ser Ala Asp Val Val Phe
 225 230 235 240
 Leu Asn Ala Asp Asn Gly Ile Leu Val Gln Asp Leu Pro Phe Glu Val
 245 250 255
 Lys Leu Lys Lys Phe His Ile Asp Phe Tyr Asn Thr Gly Met Pro Arg
 260 265 270

Asp	Phe	Ala	Ser	Asp	Ile	Glu	Val	Thr	Asp	Lys	Ala	Thr	Gly	Glu	Lys	275	280	285	
Leu	Glu	Arg	Thr	Ile	Arg	Val	Asn	His	Pro	Leu	Thr	Leu	His	Gly	Ile	290	295	300	
Thr	Ile	Tyr	Gln	Ala	Ser	Phe	Ala	Asp	Gly	Gly	Ser	Asp	Leu	Thr	Phe	305	310	315	320
Lys	Ala	Trp	Asn	Leu	Gly	Asp	Ala	Ser	Arg	Glu	Pro	Val	Val	Leu	Lys	325	330	335	
Ala	Thr	Ser	Ile	His	Gln	Phe	Pro	Leu	Glu	Ile	Gly	Lys	His	Lys	Tyr	340	345	350	
Arg	Leu	Glu	Phe	Asp	Gln	Phe	Thr	Ser	Met	Asn	Val	Glu	Asp	Met	Ser	355	360	365	
Glu	Gly	Ala	Glu	Arg	Glu	Lys	Ser	Leu	Lys	Ser	Thr	Leu	Asn	Asp	Val	370	375	380	
Arg	Ala	Val	Thr	Gln	Glu	Gly	Lys	Lys	Tyr	Thr	Asn	Ile	Gly	Pro	Ser	385	390	395	400
Ile	Val	Tyr	Arg	Ile	Arg	Asp	Ala	Ala	Gly	Gln	Ala	Val	Glu	Tyr	Lys	405	410	415	
Asn	Tyr	Met	Leu	Pro	Val	Leu	Gln	Glu	Gln	Asp	Tyr	Phe	Trp	Ile	Thr	420	425	430	
Gly	Thr	Arg	Ser	Gly	Leu	Gln	Gln	Gln	Tyr	Arg	Trp	Leu	Arg	Ile	Pro	435	440	445	
Leu	Asp	Lys	Gln	Leu	Lys	Ala	Asp	Thr	Phe	Met	Ala	Leu	Arg	Glu	Phe	450	455	460	
Leu	Lys	Asp	Gly	Glu	Gly	Arg	Lys	Arg	Leu	Val	Ala	Asp	Ala	Thr	Lys	465	470	475	480
Gly	Ala	Pro	Ala	Glu	Ile	Arg	Glu	Gln	Phe	Met	Leu	Ala	Ala	Glu	Asn	485	490	495	
Thr	Leu	Asn	Ile	Phe	Ala	Gln	Lys	Gly	Tyr	Leu	Gly	Leu	Asp	Glu	Phe	500	505	510	
Ile	Thr	Ser	Asn	Ile	Pro	Lys	Glu	Gln	Gln	Asp	Lys	Met	Gln	Gly	Tyr	515	520	525	
Phe	Tyr	Glu	Met	Leu	Tyr	Gly	Val	Met	Asn	Ala	Ala	Leu	Asp	Glu	Thr	530	535	540	
Ile	Arg	Arg	Tyr	Gly	Leu	Pro	Glu	Trp	Gln	Gln	Asp	Glu	Ala	Arg	Asn	545	550	555	560
Arg	Phe	Leu	Leu	His	Ser	Met	Asp	Ala	Tyr	Thr	Gly	Leu	Thr	Glu	Tyr				

	565		570		575
Pro Ala	Pro Met Leu Leu Gln Leu Asp Gly Phe Ser Glu Val Arg Ser				
	580		585		590
Ser Gly	Leu Gln Met Thr Arg Ser Pro Gly Ala Leu Leu Val Tyr Leu				
	595		600		605
Gly Ser	Val Leu Leu Val Leu Gly Thr Val Leu Met Phe Tyr Val Arg				
	610		615		620
Glu Lys	Arg Ala Trp Val Leu Phe Ser Asp Gly Lys Ile Arg Phe Ala				
	625		630		635
Met Ser	Ser Ala Arg Ser Glu Arg Asp Leu Gln Lys Glu Phe Pro Lys				
	645		650		655
His Val	Glu Ser Leu Gln Arg Leu Gly Lys Asp Leu Asn His Asp				
	660		665		670

<210> 333
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)

<223> N= Unknown

<400> 333
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8

<210> 334
 <211> 434
 <212> PRT
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (398)..(398)
 <223> Xaa= any amino acid

<400>	334
Met Val Phe Leu Asn Ala Asp Asn Gly Met Leu Val Gln Asp Leu Pro	
1	5 10 15
Phe Glu Val Lys Leu Lys Lys Phe His Ile Asp Phe Tyr Asn Thr Gly	
	20 25 30
Met Pro Arg Asp Phe Ala Ser Asp Ile Glu Val Thr Asp Lys Ala Thr	
	35 40 45
Gly Glu Lys Leu Glu Arg Thr Ile Arg Val Asn His Pro Leu Thr Leu	
	50 55 60

His Gly Ile Thr Ile Tyr Gln Ala Ser Phe Ala Asp Gly Gly Ser Asp
 65 70 75 80
 Leu Thr Phe Lys Ala Trp Asn Leu Arg Asp Ala Ser Arg Glu Pro Val
 85 90 95
 Val Leu Lys Ala Thr Ser Ile His Gln Phe Pro Leu Glu Ile Gly Lys
 100 105 110
 His Lys Tyr Arg Leu Glu Phe Asp Gln Phe Thr Ser Met Asn Val Glu
 115 120 125
 Asp Met Ser Glu Gly Ala Glu Arg Glu Lys Ser Leu Lys Ser Thr Leu
 130 135 140
 Asn Asp Val Arg Ala Val Thr Gln Glu Gly Lys Lys Tyr Thr Asn Ile
 145 150 155 160
 Gly Pro Ser Ile Val Tyr Arg Ile Arg Asp Ala Ala Gly Gln Ala Val
 165 170 175
 Glu Tyr Lys Asn Tyr Met Leu Pro Ile Leu Gln Asp Lys Asp Tyr Phe
 180 185 190
 Trp Leu Thr Gly Thr Arg Ser Gly Leu Gln Gln Gln Tyr Arg Trp Leu
 195 200 205
 Arg Ile Pro Leu Asp Lys Gln Leu Lys Ala Asp Thr Phe Met Ala Leu
 210 215 220
 Arg Glu Phe Leu Lys Asp Gly Glu Gly Arg Lys Arg Leu Val Ala Asp
 225 230 235 240
 Ala Thr Lys Asp Ala Pro Ala Glu Ile Arg Glu Gln Phe Met Leu Ala
 245 250 255
 Ala Glu Asn Thr Leu Asn Ile Phe Ala Gln Lys Gly Tyr Leu Gly Leu
 260 265 270
 Asp Glu Phe Ile Thr Ser Asn Ile Pro Lys Gly Gln Gln Asp Lys Met
 275 280 285
 Gln Gly Tyr Phe Tyr Glu Met Leu Tyr Gly Val Met Asn Ala Ala Leu
 290 295 300
 Asp Glu Thr Ile Arg Arg Tyr Gly Leu Pro Glu Trp Gln Gln Asp Glu
 305 310 315 320
 Ala Arg Asn Arg Phe Leu Leu His Ser Met Asp Ala Tyr Thr Gly Leu
 325 330 335
 Thr Glu Tyr Pro Ala Pro Met Leu Leu Gln Leu Asp Gly Phe Ser Glu
 340 345 350

Val Arg Ser Ser Gly Leu Gln Met Thr Arg Ser Pro Gly Ala Leu Leu
355 360 365

Val Tyr Leu Gly Ser Val Leu Leu Val Leu Gly Thr Val Phe Met Phe
370 375 380

Tyr Val Pro Lys Lys Arg Ala Trp Val Leu Phe Ser Asn Xaa Lys Ile
385 390 395 400

Arg Phe Ala Met Ser Ser Ala Arg Ser Glu Arg Asp Leu Gln Lys Glu
405 410 415

Phe Pro Lys His Val Glu Ser Leu Gln Arg Leu Gly Lys Asp Leu Asn
420 425 430

His Asp

<210> 335
<211> 2016
<212> DNA
<213> Neisseria gonorrhoeae

<400> 335
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tccatgcgct ttgcggtcgc tttgctcagt ctgctgggta ttgcatcggt tatcggcacg 120
gtgttacagc aaaaccagcc gcagacggat tatttggtca aattcggacc gttttggact 180
cggatttttg attttttggg tttgtatgat gtctatgctt cggcatgggt tgtcgttacc 240
atgatgtttc tgggtggtttc taccagtttg tgtttaatcc gtaacgttcc gccgttttgg 300
cgcgaaatga agtctttccg ggaaaagggt aaagaaaaat ctctggcggc gatgcgccat 360

tcttcgctgt tggatgtaaa aattgcccc gaagttgcc aacgttatct ggaggtgcgg 420
ggttttcagg gaaaaaccgt cagccgtgag gacgggtcgg ttctgattgc cgccaaaaaa 480
ggcacaatga acaaatgggg ctatatcttt gcccaagtag ctttgattgt catttgctg 540
ggcgggttga tagacagtaa cctgctgctg aaagtgggta tgctggccgg tcggattggt 600
ccggacaatc aggcgggttta tgccaaggat ttcaagcccg aaagtatttt ggggtcgtcc 660
aatctctcat ttaggggcaa cgtcaatatt tccgaggggc aaagtgcgga tgtgggtttc 720
ctgaatgccg acaacgggat gttgggttcag gaactgcctt ttgaagtcaa actgaaaaaa 780
ttccatatcg atttttacaa tacgggtatg ccgcgcgatt ttgccagcga tattgaagta 840
acggacaagg caaccgggtga gaaactcgag cgcaccatcc gcgtgaacca tcctttgacc 900
ttgcacggca tcacgattta tcaggcgagt tttgccgacg gcggttcgga tttgacattc 960
aaggcgtgga atttgaggga tgcttcgcgc gaacctgtcg tgttgaaggc aacctccata 1020
caccagtttc cgttggaat cggcaaacac aaatatcgtc ttgagttcga tcagttcact 1080
tctatgaatg tggaggacat gagcgagggt gcggaacggg aaaaaagcct gaaatccact 1140
ctgaacgatg tccgcgcgct tactcaggaa ggtaaaaaat acaccaatat cggcccttcc 1200
atcgtgtacc gcatccgtga tgcggcaggg caggcggtcg aatataaaaa ctatatgctg 1260
ccgattttgc aggacaaaga ttattttttg ctgaccggca cgcgcagcgg cttgcagcag 1320
caataccgct ggctgcgtat ccccttggac aagcagttga aagcggacac ctttatggca 1380
ttgcgtgagt ttttgaaaga tggggaaggc cgcaaacgtc tggttgccga cgcaacaaaa 1440
gacgcacctg ccgaaatccg cgaacaattc atgctggctg cggaaaacac gctgaatatc 1500
tttgcgcaaa aaggctattt gggattggac gaatttatta cgtccaatat cccgaaaggg 1560
cagcaggata agatgcaggg ctatttctac gaaatgcttt acggcgtgat gaacgctgct 1620
ttggatgaaa ccatacgccg gtacggcttg cccgaatggc agcaggatga agcgcggaac 1680
cgtttcctgc tgcacagtat ggatgcctat acggggctga cggaatatcc cgcgcctatg 1740
ctgctccagc ttgacgggtt ttccgaggtg cgttccctcag gtttgcagat gaccgcgttcg 1800
ccgggtgcgc ttttgggtcta tctcggtcgc gtattgttgg ttttgggtac ggtatttatg 1860

ttttatgtgc gcgaaaaacg ggcgtgggta ttgttttcag acggcaaaat ccgttttgct	1920
atgtcttcgg cccgcagcga acgggatttg cagaaggaat ttccaaaaca cgtcgagagc	1980
ctgcaacggc tcggcaagga cttgaatcat gactga	2016

<210> 336
 <211> 671
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 336
 Met Ser Lys Ser Arg Arg Ser Pro Pro Leu Leu Ser Arg Pro Trp Phe
 1 5 10 15

Ala Phe Phe Ser Ser Met Arg Phe Ala Val Ala Leu Leu Ser Leu Leu
 20 25 30

Gly Ile Ala Ser Val Ile Gly Thr Val Leu Gln Gln Asn Gln Pro Gln
 35 40 45

Thr Asp Tyr Leu Val Lys Phe Gly Ser Phe Trp Ala Gln Ile Phe Gly
 50 55 60

Phe Leu Gly Leu Tyr Asp Val Tyr Ala Ser Ala Trp Phe Val Val Ile
 65 70 75 80

Met Met Phe Leu Val Ser Thr Ser Leu Cys Leu Ile Arg Asn Val
 85 90 95

Pro Pro Phe Trp Arg Glu Met Lys Ser Phe Arg Glu Lys Val Lys Glu
 100 105 110

Lys Ser Leu Ala Ala Met Arg His Ser Ser Leu Leu Asp Val Lys Ile
 115 120 125

Ala Pro Glu Val Ala Lys Arg Tyr Leu Glu Val Gln Gly Phe Gln Gly
 130 135 140

Lys Thr Ile Asn Arg Glu Asp Gly Ser Val Leu Ile Ala Ala Lys Lys
 145 150 155 160

Gly Thr Met Asn Lys Trp Gly Tyr Ile Phe Ala His Val Ala Leu Ile
 165 170 175

Val Ile Cys Leu Gly Gly Leu Ile Asp Ser Asn Leu Leu Leu Lys Leu
 180 185 190

Gly Met Leu Thr Gly Arg Ile Val Pro Asp Asn Gln Ala Val Tyr Ala
 195 200 205

Lys Asp Phe Lys Pro Glu Ser Ile Leu Gly Ala Ser Asn Leu Ser Phe
 210 215 220

Arg Gly Asn Val Asn Ile Ser Glu Gly Gln Ser Ala Asp Val Val Phe
 225 230 235 240

Leu Asn Ala Asp Asn Gly Ile Leu Val Gln Asp Leu Pro Phe Glu Val
 245 250 255
 Lys Leu Lys Lys Phe His Ile Asp Phe Tyr Asn Thr Gly Met Pro Arg
 260 265 270
 Asp Phe Ala Ser Asp Ile Glu Val Thr Asp Lys Ala Thr Gly Glu Lys
 275 280 285
 Leu Glu Arg Thr Ile Arg Val Asn His Pro Leu Thr Leu His Gly Ile
 290 295 300
 Thr Ile Tyr Gln Ala Ser Phe Ala Asp Gly Gly Ser Asp Leu Thr Phe
 305 310 315 320
 Lys Ala Trp Asn Leu Gly Asp Ala Ser Arg Glu Pro Val Val Leu Lys
 325 330 335
 Ala Thr Ser Ile His Gln Phe Pro Leu Glu Ile Gly Lys His Lys Tyr
 340 345 350
 Arg Leu Glu Phe Asp Gln Phe Thr Ser Met Asn Val Glu Asp Met Ser
 355 360 365
 Glu Gly Ala Glu Arg Glu Lys Ser Leu Lys Ser Thr Leu Asn Asp Val
 370 375 380
 Arg Ala Val Thr Gln Glu Gly Lys Lys Tyr Thr Asn Ile Gly Pro Ser
 385 390 395 400
 Ile Val Tyr Arg Ile Arg Asp Ala Ala Gly Gln Ala Val Glu Tyr Lys
 405 410 415
 Asn Tyr Met Leu Pro Val Leu Gln Glu Gln Asp Tyr Phe Trp Ile Thr
 420 425 430
 Gly Thr Arg Ser Gly Leu Gln Gln Gln Tyr Arg Trp Leu Arg Ile Pro
 435 440 445
 Leu Asp Lys Gln Leu Lys Ala Asp Thr Phe Met Ala Leu Arg Glu Phe
 450 455 460
 Leu Lys Asp Gly Glu Gly Arg Lys Arg Leu Val Ala Asp Ala Thr Lys
 465 470 475 480
 Gly Ala Pro Ala Glu Ile Arg Glu Gln Phe Met Leu Ala Ala Glu Asn
 485 490 495
 Thr Leu Asn Ile Phe Ala Gln Lys Gly Tyr Leu Gly Leu Asp Glu Phe
 500 505 510
 Ile Thr Ser Asn Ile Pro Lys Glu Gln Gln Asp Lys Met Gln Gly Tyr
 515 520 525
 Phe Tyr Glu Met Leu Tyr Gly Val Met Asn Ala Ala Leu Asp Glu Thr
 530 535 540

Ile Arg Arg Tyr Gly Leu Pro Glu Trp Gln Gln Asp Glu Ala Arg Asn
545 550 555 560

Arg Phe Leu Leu His Ser Met Asp Ala Tyr Thr Gly Leu Thr Glu Tyr
565 570 575

Pro Ala Pro Met Leu Leu Gln Leu Asp Gly Phe Ser Glu Val Arg Ser
580 585 590

Ser Gly Leu Gln Met Thr Arg Ser Pro Gly Ala Leu Leu Val Tyr Leu
595 600 605

Gly Ser Val Leu Leu Val Leu Gly Thr Val Leu Met Phe Tyr Val Arg
610 615 620

Glu Lys Arg Ala Trp Val Leu Phe Ser Asp Gly Lys Ile Arg Phe Ala
625 630 635 640

Met Ser Ser Ala Arg Ser Glu Arg Asp Leu Gln Lys Glu Phe Pro Lys
645 650 655

His Val Glu Ser Leu Gln Arg Leu Gly Lys Asp Leu Asn His Asp
660 665 670

<210> 337
<211> 489
<212> DNA
<213> Neisseria meningitidis

<400> 337
atgatgagta atamaatggm acaaaaaggg ttacattga ttgmgmtgat gatagtcgtc 60
gcgatactcg gcattatcag cgtcattgcc ataccttctt atcmaagtta tattgaaaaa 120

ggctatcagt ccagcttta tacggagatg gycggtatca acaatatttc caaacagttt 180
atattgaaaa atcccttga cgataatcag accatcgaga acaaaactgga aatatttgtc 240
tcaggctata agatgaatcc gaaaattgcc aaaaaatata gtgtttcggg aaagtttgtc 300
gataaggaaa aatcaagggc atacagggtg gtcggcggtc cgaaggcggg gacgggttat 360
actttgtcgg tatggatgaa cagcgtgggc gacggataca aatgccgtga tgccgcttct 420
gccaagccc atttgagac cttgtctca gatgtcggct gtgaagcctt ctctaactcg 480
aaaaaataa 489

<210> 338
<211> 162
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (5)..(5)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (7)..(7)
<223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (15)..(16)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (35)..(35)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (51)..(51)
 <223> Xaa= any amino acid

<400> 338
 Met Met Ser Asn Xaa Met Xaa Gln Lys Gly Phe Thr Leu Ile Xaa Xaa
 1 5 10 15
 Met Ile Val Val Ala Ile Leu Gly Ile Ile Ser Val Ile Ala Ile Pro
 20 25 30
 Ser Tyr Xaa Ser Tyr Ile Glu Lys Gly Tyr Gln Ser Gln Leu Tyr Thr
 35 40 45
 Glu Met Xaa Gly Ile Asn Asn Ile Ser Lys Gln Phe Ile Leu Lys Asn
 50 55 60
 Pro Leu Asp Asp Asn Gln Thr Ile Glu Asn Lys Leu Glu Ile Phe Val
 65 70 75 80
 Ser Gly Tyr Lys Met Asn Pro Lys Ile Ala Lys Lys Tyr Ser Val Ser
 85 90 95
 Val Lys Phe Val Asp Lys Glu Lys Ser Arg Ala Tyr Arg Leu Val Gly
 100 105 110
 Val Pro Lys Ala Gly Thr Gly Tyr Thr Leu Ser Val Trp Met Asn Ser
 115 120 125
 Val Gly Asp Gly Tyr Lys Cys Arg Asp Ala Ala Ser Ala Gln Ala His
 130 135 140
 Leu Glu Thr Leu Ser Ser Asp Val Gly Cys Glu Ala Phe Ser Asn Arg
 145 150 155 160
 Lys Lys

<210> 339
 <211> 489
 <212> DNA
 <213> Neisseria meningitidis

<400> 339

atgatgagta	ataaaatgga	acaaaaaggg	tttacattga	ttgagatgat	gatagtcgtc	60
gcgatactcg	gcattatcag	cgtcattgcc	ataccttctt	atcaaagtta	tattgaaaaa	120
ggctatcagt	cccagcttta	tacggagatg	gtcgggtatca	acaatatttc	caaacagttt	180
attttgaaaa	atcccctgga	cgataatcag	accatcgaga	acaaactgga	aatatttgtc	240
tcaggctata	agatgaatcc	gaaaattgcc	aaaaaatata	gtgtttcggg	aaagtttgtc	300
gataaggaaa	aatcaagggc	atacaggttg	gtcggcggttc	cgaaggcggg	gacgggttat	360
actttgtcgg	tatggatgaa	cagcgtgggc	gacggataca	aatgccgtga	tgccgcttct	420
gccaagccc	atttgagac	cttgctctca	gatgtcggct	gtgaagcctt	ctctaactgt	480
aaaaaataa						489

<210> 340
 <211> 162
 <212> PRT
 <213> Neisseria meningitidis

<400> 340
 Met Met Ser Asn Lys Met Glu Gln Lys Gly Phe Thr Leu Ile Glu Met
 1 5 10 15
 Met Ile Val Val Ala Ile Leu Gly Ile Ile Ser Val Ile Ala Ile Pro
 20 25 30
 Ser Tyr Gln Ser Tyr Ile Glu Lys Gly Tyr Gln Ser Gln Leu Tyr Thr
 35 40 45
 Glu Met Val Gly Ile Asn Asn Ile Ser Lys Gln Phe Ile Leu Lys Asn
 50 55 60
 Pro Leu Asp Asp Asn Gln Thr Ile Glu Asn Lys Leu Glu Ile Phe Val
 65 70 75 80
 Ser Gly Tyr Lys Met Asn Pro Lys Ile Ala Lys Lys Tyr Ser Val Ser
 85 90 95
 Val Lys Phe Val Asp Lys Glu Lys Ser Arg Ala Tyr Arg Leu Val Gly
 100 105 110
 Val Pro Lys Ala Gly Thr Gly Tyr Thr Leu Ser Val Trp Met Asn Ser
 115 120 125
 Val Gly Asp Gly Tyr Lys Cys Arg Asp Ala Ala Ser Ala Gln Ala His
 130 135 140
 Leu Glu Thr Leu Ser Ser Asp Val Gly Cys Glu Ala Phe Ser Asn Arg
 145 150 155 160
 Lys Lys

<210> 341
 <211> 489
 <212> DNA
 <213> Neisseria meningitidis

<220>

<221> misc_feature
<222> (44)..(44)
<223> N= Unknown

<220>
<221> misc_feature
<222> (47)..(47)
<223> N= Unknown

<220>
<221> misc_feature
<222> (49)..(49)
<223> N= Unknown

<220>
<221> misc_feature
<222> (51)..(51)
<223> N= Unknown

<220>
<221> misc_feature
<222> (54)..(54)
<223> N= Unknown

<220>
<221> misc_feature
<222> (56)..(56)
<223> N= Unknown

<220>
<221> misc_feature
<222> (58)..(58)
<223> N= Unknown

<220>
<221> misc_feature

<222> (68)..(68)
<223> N= Unknown

<220>
<221> misc_feature
<222> (70)..(70)
<223> N= Unknown

<220>
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<222> (73)..(73)
<223> N= Unknown

<220>
<221> misc_feature
<222> (77)..(77)
<223> N= Unknown

<220>

<221> misc_feature
 <222> (88)..(88)
 <223> N= Unknown

<220>
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 <222> (90)..(90)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (93)..(95)
 <223> N= Unknown

<220>
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 <222> (97)..(97)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (99)..(99)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (104)..(105)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (179)..(179)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (315)..(315)

<223> N= Unknown

<400> 341
 atgatgagta ataaaatgga acaaaaaggg tttacattga ttgngangnt natngncntc 60
 gcgatacn cn gcnttancag cgtcattncn atnnntncnt atcnagtta tattgaaaaa 120
 ggctatcagt cccagcttta tacggagatg gtcggatatca acaatatttc caaacagtnt 180
 attttgaaaa atccccctgga cgataatcag accatcaaga gcaaactgga aatatttgtc 240
 tcaggctata agatgaatcc gaaaattgcc gaaaaatata atgtttcggg gcattttgtc 300
 aatgaggaaa aaccnagggc atacagcttg gtcggcggtc caaagacggg gacgggttat 360
 actttgtcgg tatggatgaa cagcgtgggc gacggatata aatgccgtga tgccgcttct 420
 gcccgagccc atttgagagac cttgtcctca gatgtcggct gtgaagcctt ctctaatacgt 480
 aaaaaatag 489

<210> 342
 <211> 162
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (15)..(20)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (23)..(26)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (30)..(33)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (35)..(35)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (60)..(60)
 <223> Xaa= any amino acid

<400> 342
 Met Met Ser Asn Lys Met Glu Gln Lys Gly Phe Thr Leu Ile Xaa Xaa
 1 5 10 15

Xaa Xaa Xaa Xaa Ala Ile Xaa Xaa Xaa Xaa Ser Val Ile Xaa Xaa Xaa
 20 25 30

Xaa Tyr Xaa Ser Tyr Ile Glu Lys Gly Tyr Gln Ser Gln Leu Tyr Thr
 35 40 45

Glu Met Val Gly Ile Asn Asn Ile Ser Lys Gln Xaa Ile Leu Lys Asn
 50 55 60

Pro Leu Asp Asp Asn Gln Thr Ile Lys Ser Lys Leu Glu Ile Phe Val
 65 70 75 80

Ser Gly Tyr Lys Met Asn Pro Lys Ile Ala Glu Lys Tyr Asn Val Ser
 85 90 95

Val His Phe Val Asn Glu Glu Lys Pro Arg Ala Tyr Ser Leu Val Gly
 100 105 110

Val Pro Lys Thr Gly Thr Gly Tyr Thr Leu Ser Val Trp Met Asn Ser
 115 120 125

Val Gly Asp Gly Tyr Lys Cys Arg Asp Ala Ala Ser Ala Arg Ala His
 130 135 140

Leu Glu Thr Leu Ser Ser Asp Val Gly Cys Glu Ala Phe Ser Asn Arg
 145 150 155 160

Lys Lys

<210> 343
 <211> 489
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 343
 atgatgagca ataaaatgga acaaaaaggg ttacattga ttgagatgat gatagttgtc 60
 acgatactcg gcatcatcag cgtcattgcc ataccttctt atcagagtta tattgaaaaa 120
 ggctatcagt cccagcttta tacggagatg gtcggtatca acaatgttct caaacagttt 180
 attttgaaaa atccccagga cgataatgat accctcaaga gcaaactgaa aatatttgtc 240
 tcaggctata agatgaatcc gaaaattgcc aaaaaatata gtgtttcggg aaggtttgtc 300
 gatgcggaaa aaccaagggc atacaggttg gtcggcggtc cgaacgcggg gacgggttat 360
 actttgtcgg tatggatgaa cagcgtgggc gacggatata aatgccgtga tgccacttct 420
 gccaggcct attcggacac cttgtccgca gatagcggct gtgaagcttt ctctaatacgt 480
 aaaaaatag 489

<210> 344
 <211> 162
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 344
 Met Met Ser Asn Lys Met Glu Gln Lys Gly Phe Thr Leu Ile Glu Met
 1 5 10 15
 Met Ile Val Val Thr Ile Leu Gly Ile Ile Ser Val Ile Ala Ile Pro
 20 25 30
 Ser Tyr Gln Ser Tyr Ile Glu Lys Gly Tyr Gln Ser Gln Leu Tyr Thr
 35 40 45
 Glu Met Val Gly Ile Asn Asn Val Leu Lys Gln Phe Ile Leu Lys Asn
 50 55 60
 Pro Gln Asp Asp Asn Asp Thr Leu Lys Ser Lys Leu Lys Ile Phe Val
 65 70 75 80
 Ser Gly Tyr Lys Met Asn Pro Lys Ile Ala Lys Lys Tyr Ser Val Ser
 85 90 95
 Val Arg Phe Val Asp Ala Glu Lys Pro Arg Ala Tyr Arg Leu Val Gly
 100 105 110
 Val Pro Asn Ala Gly Thr Gly Tyr Thr Leu Ser Val Trp Met Asn Ser
 115 120 125
 Val Gly Asp Gly Tyr Lys Cys Arg Asp Ala Thr Ser Ala Gln Ala Tyr
 130 135 140
 Ser Asp Thr Leu Ser Ala Asp Ser Gly Cys Glu Ala Phe Ser Asn Arg
 145 150 155 160

Lys Lys

<210> 345
 <211> 276
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (263)..(263)
 <223> N= Unknown

<400> 345
 atgaaaaaat cctccctcat cagcgcatg ggcacggta ttttgagcat cggcatggca 60
 ttggcgcgcc ctgccgacgc ggtaagccaa atccgtcaaa acgccactca agtattgagc 120
 atcttaaaaa acggcgatgc caacaccgct cgccaaaaag ccgaagccta tgcgattccc 180
 tatttcgatt tccaacgtat gacgcattg gcggtcggca acccttggs g caccgggtccg 240
 acggcaaaaa caagcgttgg ccnagaattt caaccc 276

<210> 346
 <211> 93
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (77)..(77)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (79)..(79)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (82)..(82)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (89)..(89)
 <223> Xaa= any amino acid

<400> 346
 Met Lys Lys Ser Ser Leu Ile Ser Ala Leu Gly Ile Gly Ile Leu Ser
 1 5 10 15
 Ile Gly Met Ala Phe Ala Ala Pro Ala Asp Ala Val Ser Gln Ile Arg
 20 25 30
 Gln Asn Ala Thr Gln Val Leu Ser Ile Leu Lys Asn Gly Asp Ala Asn
 35 40 45

Thr Ala Arg Gln Lys Ala Glu Ala Tyr Ala Ile Pro Tyr Phe Asp Phe
50 55 60

Gln Arg Met Thr Ala Leu Ala Val Gly Asn Pro Trp Xaa Thr Xaa Ser
65 70 75 80

Asp Xaa Gln Lys Gln Ala Leu Ala Xaa Glu Phe Gln Pro
85 90

<210> 347
<211> 591
<212> DNA
<213> Neisseria meningitidis

<400> 347
atgaaaaaat cctccctcat cagcgcattg ggcacggta ttttgagcat cggcatggca 60
tttgccgccc ctgccgacgc ggtaagccaa atccgtcaaa acgccactca agtattgagc 120
atcttaaaaa acggcgatgc caacaccgct cgccaaaaag ccgaagccta tgcgattccc 180
tatttcgatt tccaacgtat gaccgcattg gcggtcggca acccttggcg caccgcgtcc 240
gacgcgcaaa aacaagcgtt ggccaaagaa tttcaaacc tgetgatccg cacctattcc 300
ggcacgatgc tgaaattaaa aaacgccaac gtcaacgtca aagacaatcc catcgtcaat 360
aaaggcggca aagaaatcat cgtccgcgcc gaagtcggcg taccggggca aaaaccgctc 420
aacatggact tcaccaccta ccaaagcggc ggtaaatacc gtacctaca cgtcgccatc 480
gaaggcgcga gcctggttac cgtgtaccgc aaccaattcg gcgaaattat caaagcgaaa 540
ggcgtggacg gactgattgc cgagttgaaa gccaaaaacg gcggcaaata a 591

<210> 348
<211> 196
<212> PRT
<213> Neisseria meningitidis

<400> 348
Met Lys Lys Ser Ser Leu Ile Ser Ala Leu Gly Ile Gly Ile Leu Ser
1 5 10 15

Ile Gly Met Ala Phe Ala Ala Pro Ala Asp Ala Val Ser Gln Ile Arg
20 25 30

Gln Asn Ala Thr Gln Val Leu Ser Ile Leu Lys Asn Gly Asp Ala Asn
35 40 45

Thr Ala Arg Gln Lys Ala Glu Ala Tyr Ala Ile Pro Tyr Phe Asp Phe
50 55 60

Gln Arg Met Thr Ala Leu Ala Val Gly Asn Pro Trp Arg Thr Ala Ser
65 70 75 80

Asp Ala Gln Lys Gln Ala Leu Ala Lys Glu Phe Gln Thr Leu Leu Ile
85 90 95

Arg Thr Tyr Ser Gly Thr Met Leu Lys Leu Lys Asn Ala Asn Val Asn
100 105 110

Val Lys Asp Asn Pro Ile Val Asn Lys Gly Gly Lys Glu Ile Ile Val
115 120 125

Arg Ala Glu Val Gly Val Pro Gly Gln Lys Pro Val Asn Met Asp Phe
 130 135 140

Thr Thr Tyr Gln Ser Gly Gly Lys Tyr Arg Thr Tyr Asn Val Ala Ile
 145 150 155 160

Glu Gly Ala Ser Leu Val Thr Val Tyr Arg Asn Gln Phe Gly Glu Ile
 165 170 175

Ile Lys Ala Lys Gly Val Asp Gly Leu Ile Ala Glu Leu Lys Ala Lys
 180 185 190

Asn Gly Gly Lys
 195

<210> 349
 <211> 591
 <212> DNA
 <213> Neisseria meningitidis

<400> 349
 atgaaaaaat cctccttcat cagcgcattg ggcacggtta ttttgagcat cggcatggca 60
 tttgccgccc ctgccgacgc ggtaaaccac atccgtcaaa acgccactca agtattgagc 120
 atcttaaaaa gcggtgatgc caacaccgcc cgccaaaaag ccgaagccta tgcgattccc 180
 tatttcgatt tccaacgtat gaccgcattg gcggtcggca acccttggcg caccgcgtcc 240
 gacgcgcaaa aacaagcgtt ggccaaagaa tttcaaacc tgctgatccg cacctattcc 300
 ggcacgatgc tgaaattaaa aaacgccaac gtcaacgtca aagacaatcc catcgtcaat 360
 aaaggcggca aagaaatcat cgtccgcgcc gaagtgcggc taccggggca aaaaccgcgc 420
 aacatggact tcaccaccta ccaaagcggc ggtaaatacc gtacctaaa cgtcgccatc 480
 gaaggcgcga gcctgggttac cgtgtaccgc aaccaattcg gcgaaattat caaagcgaaa 540
 ggcgtggacg gactgattgc cgagttgaag gctaaaaacg gcagcaagta a 591

<210> 350
 <211> 196
 <212> PRT
 <213> Neisseria meningitidis

<400> 350
 Met Lys Lys Ser Ser Phe Ile Ser Ala Leu Gly Ile Gly Ile Leu Ser
 1 5 10 15

Ile Gly Met Ala Phe Ala Ala Pro Ala Asp Ala Val Asn Gln Ile Arg
 20 25 30

Gln Asn Ala Thr Gln Val Leu Ser Ile Leu Lys Ser Gly Asp Ala Asn
 35 40 45

Thr Ala Arg Gln Lys Ala Glu Ala Tyr Ala Ile Pro Tyr Phe Asp Phe
 50 55 60

Gln Arg Met Thr Ala Leu Ala Val Gly Asn Pro Trp Arg Thr Ala Ser
 65 70 75 80

Asp Ala Gln Lys Gln Ala Leu Ala Lys Glu Phe Gln Thr Leu Leu Ile

85										90					95				
Arg	Thr	Tyr	Ser	Gly	Thr	Met	Leu	Lys	Leu	Lys	Asn	Ala	Asn	Val	Asn				
			100					105					110						
Val	Lys	Asp	Asn	Pro	Ile	Val	Asn	Lys	Gly	Gly	Lys	Glu	Ile	Ile	Val				
		115					120					125							
Arg	Ala	Glu	Val	Gly	Val	Pro	Gly	Gln	Lys	Pro	Val	Asn	Met	Asp	Phe				
	130					135					140								
Thr	Thr	Tyr	Gln	Ser	Gly	Gly	Lys	Tyr	Arg	Thr	Tyr	Asn	Val	Ala	Ile				
145					150					155					160				
Glu	Gly	Ala	Ser	Leu	Val	Thr	Val	Tyr	Arg	Asn	Gln	Phe	Gly	Glu	Ile				
				165					170					175					
Ile	Lys	Ala	Lys	Gly	Val	Asp	Gly	Leu	Ile	Ala	Glu	Leu	Lys	Ala	Lys				
			180					185					190						
Asn	Gly	Ser	Lys																
			195																

<210> 351
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 351
 nnnnnnnn

8

<210> 352
 <211> 196
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 352
 Val Lys Lys Ser Ser Phe Ile Ser Ala Leu Gly Ile Gly Ile Leu Ser

1										5					10					15				
Ile	Gly	Met	Ala	Phe	Ala	Ser	Pro	Ala	Asp	Ala	Val	Gly	Gln	Ile	Arg									
			20					25				30												
Gln	Asn	Ala	Thr	Gln	Val	Leu	Thr	Ile	Leu	Lys	Ser	Gly	Asp	Ala	Ala									
		35					40					45												
Ser	Ala	Arg	Pro	Lys	Ala	Glu	Ala	Tyr	Ala	Val	Pro	Tyr	Phe	Asp	Phe									
	50					55					60													
Gln	Arg	Met	Thr	Ala	Leu	Ala	Val	Gly	Asn	Pro	Trp	Arg	Thr	Ala	Ser									

Gln Asn Ala Thr Gln Val Leu Thr Ile Leu Lys Ser Gly Asp Ala Ala
 35 40 45
 Ser Ala Arg Pro Lys Ala Glu Ala Tyr Ala Val Pro Tyr Phe Asp Phe
 50 55 60
 Gln Arg Met Thr Ala Leu Ala Val Gly Asn Pro Trp Arg Thr Ala Ser
 65 70 75 80
 Asp Ala Gln Lys Gln Ala Leu Ala Lys Glu Phe Gln Thr Leu Leu Ile
 85 90 95
 Arg Thr Tyr Ser Gly Thr Met Leu Lys Phe Lys Asn Ala Thr Val Asn
 100 105 110
 Val Lys Asp Asn Pro Ile Val Asn Lys Gly Gly Lys Glu Ile Val Val
 115 120 125
 Arg Ala Glu Val Gly Ile Pro Gly Gln Lys Pro Val Asn Met Asp Phe
 130 135 140
 Thr Thr Tyr Gln Ser Gly Gly Lys Tyr Arg Thr Tyr Asn Val Ala Ile
 145 150 155 160
 Glu Gly Thr Ser Leu Val Thr Val Tyr Arg Asn Gln Phe Gly Glu Ile
 165 170 175
 Ile Lys Ala Lys Gly Ile Asp Gly Leu Ile Ala Glu Leu Lys Ala Lys
 180 185 190
 Asn Gly Gly Lys
 195

<210> 355
 <211> 480
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (138)..(162)
 <223> N= Unknown

<400> 355
 atgaaacaca tactccccct gattgccgca tccgcactct gcatttcaac cgcttcggca 60

catcctgcc a gccaaccgtc cactcaaaac gaaaccgcta tgatcacgca taccctcatc 120
 tcaaaatata gttttggnnn nnnnnnnnnnn nnnnnnnnnnn nngccataaa aagcaaaggg 180
 atggacattt ttgccgtcat cgaccatcag gaagccgcac gccgaaacgg cttaacgatg 240
 cagccggcaa aagtcacatcgt cttcggcacg cccaaagccg gcacgccgct gatggtcaaa 300
 gaccccgct tcgccctgca actgccccta cgcgtcctcg ttaccgaaac ggacggcaaa 360
 gtacgcgccg cctataccga tacgcgcgcc ctcatcgccg gcagccgcat cggtttcgac 420
 gaagtggcaa acactttggc aaacgccgaa aaactgatac aaaaaaccgt aggcgaataa 480

<210> 356
 <211> 159

<212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (47)..(54)
 <223> Xaa= any amino acid

<400> 356
 Met Lys His Ile Leu Pro Leu Ile Ala Ala Ser Ala Leu Cys Ile Ser
 1 5 10 15
 Thr Ala Ser Ala His Pro Ala Ser Glu Pro Ser Thr Gln Asn Glu Thr
 20 25 30
 Ala Met Ile Thr His Thr Leu Ile Ser Lys Tyr Ser Phe Gly Xaa Xaa
 35 40 45
 Xaa Xaa Xaa Xaa Xaa Xaa Ala Ile Lys Ser Lys Gly Met Asp Ile Phe
 50 55 60
 Ala Val Ile Asp His Gln Glu Ala Ala Arg Arg Asn Gly Leu Thr Met
 65 70 75 80
 Gln Pro Ala Lys Val Ile Val Phe Gly Thr Pro Lys Ala Gly Thr Pro
 85 90 95
 Leu Met Val Lys Asp Pro Ala Phe Ala Leu Gln Leu Pro Leu Arg Val
 100 105 110
 Leu Val Thr Glu Thr Asp Gly Lys Val Arg Ala Ala Tyr Thr Asp Thr
 115 120 125
 Arg Ala Leu Ile Ala Gly Ser Arg Ile Gly Phe Asp Glu Val Ala Asn
 130 135 140
 Thr Leu Ala Asn Ala Glu Lys Leu Ile Gln Lys Thr Val Gly Glu
 145 150 155

<210> 357
 <211> 480
 <212> DNA
 <213> Neisseria meningitidis

<400> 357
 atgaaacaca tactccccct gattgcccga tccgcactct gcatttcaac cgcttcggca 60
 catcctgccg gcgaaccgtc caccctaaac gaaaccgcta tgaccacgca taccctcacc 120
 tcaaaatata gttttgacga aaccgtcagc cgccttgaaa ccgccataaa aagcaaaggg 180
 atggacattt ttgccgtcat cgaccatcag gaagccgccc gccgaaacgg cttaacgatg 240
 cagccggcaa aagtcacgtt cttcggcacg cccaaagccg gcacgccgct gatggtcaaa 300
 gaccccgctt tcgccctgca actgccccta cgcgtcctcg ttaccgaaac ggacggcaaa 360
 gtacgcgccg cctataccga tacgcgcgcc ctcacgcgcc gcagccgcat cggtttcgac 420
 gaagtggcaa acactttggc aaacgccgaa aaactgatac aaaaaaccgt aggcgaataa 480

<210> 358

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<211> 159
<212> PRT
<213> Neisseria meningitidis

<400> 358
Met Lys His Ile Leu Pro Leu Ile Ala Ala Ser Ala Leu Cys Ile Ser
1          5          10          15

Thr Ala Ser Ala His Pro Ala Ser Glu Pro Ser Thr Gln Asn Glu Thr
          20          25          30

Ala Met Thr Thr His Thr Leu Thr Ser Lys Tyr Ser Phe Asp Glu Thr
          35          40          45

Val Ser Arg Leu Glu Thr Ala Ile Lys Ser Lys Gly Met Asp Ile Phe
          50          55          60

Ala Val Ile Asp His Gln Glu Ala Ala Arg Arg Asn Gly Leu Thr Met
65          70          75          80

Gln Pro Ala Lys Val Ile Val Phe Gly Thr Pro Lys Ala Gly Thr Pro
          85          90          95

Leu Met Val Lys Asp Pro Ala Phe Ala Leu Gln Leu Pro Leu Arg Val
          100          105          110

Leu Val Thr Glu Thr Asp Gly Lys Val Arg Ala Ala Tyr Thr Asp Thr
          115          120          125

Arg Ala Leu Ile Ala Gly Ser Arg Ile Gly Phe Asp Glu Val Ala Asn
          130          135          140

Thr Leu Ala Asn Ala Glu Lys Leu Ile Gln Lys Thr Val Gly Glu
145          150          155

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<210> 359
<211> 480
<212> DNA
<213> Neisseria meningitidis

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<220>
<221> misc_feature
<222> (5)..(5)
<223> N= Unknown

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<220>
<221> misc_feature

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<222> (23)..(23)
<223> N= Unknown

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<220>
<221> misc_feature
<222> (26)..(26)
<223> N= Unknown

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<220>
<221> misc_feature
<222> (59)..(60)
<223> N= Unknown

<220>
<221> misc_feature
<222> (337)..(337)
<223> N= Unknown

<400> 359
atganacaca tactccccct gantgncgca tccgcactct gcatttcaac cgcttcggnn      60
catcctgccg gccaaccgca aacccaaaac gaaaccgcta tgaccacgca taccctcacc      120
tcaaaatata gttttgacga aaccgtcagc cgccttgaaa ccgccataaa aagcaaaggg      180
atggacattt ttgccgtcat cgaccatcag gaagccgccc gccgaaacgg cttaacgatg      240
cagccggcaa aagtcacgtg cttcggcacg cccaaagccg gtacgccgct gatggtcaaa      300
gaccccgctt tcgccctgca actgccccctg cgcgtcntcg ttaccgaaac ggacggcaaa      360
gtacgcgcgg cctataccga tacgcgcgcc ctcacgcgcg gcagccgcat cggtttcgac      420
gaagtggcaa acactttggc aaacgccgaa aaactgatac aaaaaccat aggcgaataa      480

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<210> 360
<211> 159
<212> PRT
<213> Neisseria meningitidis

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<220>
<221> misc_feature
<222> (2)..(2)
<223> Xaa= any amino acid

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<220>
<221> misc_feature
<222> (8)..(9)
<223> Xaa= any amino acid

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<220>
<221> misc_feature
<222> (20)..(20)
<223> Xaa= any amino acid

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<220>
<221> misc_feature
<222> (113)..(113)
<223> Xaa= any amino acid

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<400> 360
Met Xaa His Ile Leu Pro Leu Xaa Xaa Ala Ser Ala Leu Cys Ile Ser
1              5              10              15

```

```

Thr Ala Ser Xaa His Pro Ala Ser Glu Pro Gln Thr Gln Asn Glu Thr
20              25              30

```

```

Ala Met Thr Thr His Thr Leu Thr Ser Lys Tyr Ser Phe Asp Glu Thr
35              40              45

```

```

Val Ser Arg Leu Glu Thr Ala Ile Lys Ser Lys Gly Met Asp Ile Phe

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50 55 60
 Ala Val Ile Asp His Gln Glu Ala Ala Arg Arg Asn Gly Leu Thr Met
 65 70 75 80
 Gln Pro Ala Lys Val Ile Val Phe Gly Thr Pro Lys Ala Gly Thr Pro
 85 90 95
 Leu Met Val Lys Asp Pro Ala Phe Ala Leu Gln Leu Pro Leu Arg Val
 100 105 110
 Xaa Val Thr Glu Thr Asp Gly Lys Val Arg Ala Ala Tyr Thr Asp Thr
 115 120 125
 Arg Ala Leu Ile Ala Gly Ser Arg Ile Gly Phe Asp Glu Val Ala Asn
 130 135 140
 Thr Leu Ala Asn Ala Glu Lys Leu Ile Gln Lys Thr Ile Gly Glu
 145 150 155

<210> 361
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 361
 nnnnnnnn

8

<210> 362
 <211> 159
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 362
 Met Lys His Ile Leu Pro Pro Ile Ala Ala Ser Ala Phe Cys Ile Ser
 1 5 10 15
 Thr Ala Ser Ala His Pro Ala Gly Lys Pro Pro Thr Gln Asn Glu Thr
 20 25 30
 Ala Met Thr Thr His Thr Leu Thr Ser Lys Tyr Ser Phe Asp Glu Thr
 35 40 45
 Val Ser Arg Leu Glu Thr Ala Ile Lys Ser Lys Gly Met Asp Ile Phe

50 55 60
 Ala Val Ile Asp His Gln Glu Ala Ala Arg Arg Asn Gly Leu Thr Met
 65 70 75 80
 Gln Pro Ala Lys Val Ile Val Phe Gly Thr Pro Lys Ala Gly Thr Pro

	85		90		95
Leu Met Val Lys Asp Pro Ala Phe Ala Leu Gln Leu Pro Leu Arg Val					
	100		105		110
Leu Val Thr Glu Thr Asp Gly Lys Val Arg Thr Ala Tyr Thr Asp Thr					
	115		120		125
Arg Ala Leu Ile Val Gly Ser Arg Ile Ser Phe Asp Glu Val Ala Asn					
	130		135		140
Thr Leu Ala Asn Ala Glu Lys Leu Ile Gln Lys Thr Val Gly Glu					
	145		150		155

<210> 363
 <211> 480
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 363	
atgaaacaca tactccccct gatcgccgca tccgcactct gcatttcaac cgcttcggca	60
caccctgccg gcaaaccgcc caccctgcta gaaaccgcta tgaccacgca caccctcacc	120
tcgaaataca gttttgacga aaccgtcagc cgccttgaaa ccgccataaa aagcaaaggg	180
atggacattt ttgccgtcat cgaccatcag gaagcggcac gccgaaacgg cctgaccatg	240
cagccggcaa aagtcacgtg cttcggcacg cccaaggccg gtacgccgct gatggtcaaa	300
gaccccgct tcgccctgca actgcccctg cgcgtcctcg ttaccgaaac ggacggcaaa	360
gtacgcaccg cctataccga tacgcgcgcc ctcacgtcg gcagccgcat cagtttcgac	420
gaagtggcaa acactttggc aaacgccgaa aaactgatac aaaaaaccgt aggcgaataa	480

<210> 364
 <211> 159
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 364	
Met Lys His Ile Leu Pro Leu Ile Ala Ala Ser Ala Leu Cys Ile Ser	
1 5 10 15	
Thr Ala Ser Ala His Pro Ala Gly Lys Pro Pro Thr Gln Asn Glu Thr	
20 25 30	
Ala Met Thr Thr His Thr Leu Thr Ser Lys Tyr Ser Phe Asp Glu Thr	
35 40 45	
Val Ser Arg Leu Glu Thr Ala Ile Lys Ser Lys Gly Met Asp Ile Phe	
50 55 60	
Ala Val Ile Asp His Gln Glu Ala Ala Arg Arg Asn Gly Leu Thr Met	
65 70 75 80	
Gln Pro Ala Lys Val Ile Val Phe Gly Thr Pro Lys Ala Gly Thr Pro	
85 90 95	
Leu Met Val Lys Asp Pro Ala Phe Ala Leu Gln Leu Pro Leu Arg Val	
100 105 110	

Leu Val Thr Glu Thr Asp Gly Lys Val Arg Thr Ala Tyr Thr Asp Thr
 115 120 125

Arg Ala Leu Ile Val Gly Ser Arg Ile Ser Phe Asp Glu Val Ala Asn
 130 135 140

Thr Leu Ala Asn Ala Glu Lys Leu Ile Gln Lys Thr Val Gly Glu
 145 150 155

<210> 365
 <211> 597
 <212> DNA
 <213> Neisseria meningitidis

<400> 365
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 cccgcctttc agaatgtggc ggcggagggg atagatgtga gccgtgccga agcgaggata 120
 accgacggcg ggcagctttc catcagcagc cgcttccaaa ccgagctgcc cgaccagctc 180
 caacaggcgt tgcgcggggg cgtgcccgtc aactttacct taagctggca gctttccgcc 240
 ccgataatcg cttcttatcg gtttaaattg gggcaactga ttggcgatga cgacaatatt 300
 gactacaaac tgagtttcca tccgctgacc aaacgctacc gcgttaccgt cggcgcgctt 360
 tcgacagact acgacacctt ggatgcggca ttgcgcgcga ccggcgcggt tgccaactgg 420
 aaagtcttga acaaaggcgc gctgtccggt gcggaagcag gggaaaccaa ggcggaaatc 480
 cgcttgacgc tgtccacttc aaaactgccc aagccttttc aaatcaatgc attgacttct 540
 caaaactggc atttggattc gggttggaaa cctctaaca tcatcgggaa caaataa 597

<210> 366
 <211> 198
 <212> PRT
 <213> Neisseria meningitidis

<400> 366
 Met Ala Phe Ile Thr Arg Leu Phe Lys Ser Ser Lys Trp Leu Ile Val
 1 5 10 15
 Pro Leu Met Leu Pro Ala Phe Gln Asn Val Ala Ala Glu Gly Ile Asp
 20 25 30
 Val Ser Arg Ala Glu Ala Arg Ile Thr Asp Gly Gly Gln Leu Ser Ile
 35 40 45
 Ser Ser Arg Phe Gln Thr Glu Leu Pro Asp Gln Leu Gln Gln Ala Leu
 50 55 60
 Arg Arg Gly Val Pro Leu Asn Phe Thr Leu Ser Trp Gln Leu Ser Ala
 65 70 75 80
 Pro Ile Ile Ala Ser Tyr Arg Phe Lys Leu Gly Gln Leu Ile Gly Asp
 85 90 95
 Asp Asp Asn Ile Asp Tyr Lys Leu Ser Phe His Pro Leu Thr Lys Arg
 100 105 110
 Tyr Arg Val Thr Val Gly Ala Phe Ser Thr Asp Tyr Asp Thr Leu Asp

115 120 125
 Ala Ala Leu Arg Ala Thr Gly Ala Val Ala Asn Trp Lys Val Leu Asn
 130 135 140
 Lys Gly Ala Leu Ser Gly Ala Glu Ala Gly Glu Thr Lys Ala Glu Ile
 145 150 155 160
 Arg Leu Thr Leu Ser Thr Ser Lys Leu Pro Lys Pro Phe Gln Ile Asn
 165 170 175
 Ala Leu Thr Ser Gln Asn Trp His Leu Asp Ser Gly Trp Lys Pro Leu
 180 185 190
 Asn Ile Ile Gly Asn Lys
 195

<210> 367
 <211> 597
 <212> DNA
 <213> Neisseria meningitidis

<400> 367
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 cccgcctttc agaattgtggc ggcggagggg atagatgtga gccgtgccga agcgaggata 120
 accgacggcg ggcagctttc catcagcagc cgcttccaaa ccgagctgcc cgaccagctc 180
 caacaggcgt tgcgcggggg cgtgccgctc aactttacct taagctggca gctttccgcc 240
 ccgataatcg cttcttatcg gtttaaattg gggcaactga ttggcgatga cgacaatatt 300
 gactacaaac tgagtttcca tccgctgacc aaccgctacc gcgttaccgt cggcgcgttt 360
 tgcacagact acgacacctt ggatgcggca ttgcgcgcga ccggcgcggg tgccaactgg 420
 aaagtccctga acaaaggcgc gctgtccggg gcggaagcag gggaaaccaa ggcggaaatc 480
 cgcttgacgc tgtccacttc aaaactgccc aagccttttc aaatcaatgc attgacttct 540
 caaaactggc atttgatttc gggttggaaa cctctaaaca tcatcgggaa caaataa 597

<210> 368
 <211> 198
 <212> PRT
 <213> Neisseria meningitidis

<400> 368
 Met Ala Phe Ile Thr Arg Leu Phe Lys Ser Ser Lys Trp Leu Ile Val
 1 5 10 15
 Pro Leu Met Leu Pro Ala Phe Gln Asn Val Ala Ala Glu Gly Ile Asp
 20 25 30
 Val Ser Arg Ala Glu Ala Arg Ile Thr Asp Gly Gly Gln Leu Ser Ile
 35 40 45
 Ser Ser Arg Phe Gln Thr Glu Leu Pro Asp Gln Leu Gln Gln Ala Leu
 50 55 60
 Arg Arg Gly Val Pro Leu Asn Phe Thr Leu Ser Trp Gln Leu Ser Ala
 65 70 75 80

Pro Ile Ile Ala Ser Tyr Arg Phe Lys Leu Gly Gln Leu Ile Gly Asp
 85 90 95
 Asp Asp Asn Ile Asp Tyr Lys Leu Ser Phe His Pro Leu Thr Asn Arg
 100 105 110
 Tyr Arg Val Thr Val Gly Ala Phe Ser Thr Asp Tyr Asp Thr Leu Asp
 115 120 125
 Ala Ala Leu Arg Ala Thr Gly Ala Val Ala Asn Trp Lys Val Leu Asn
 130 135 140
 Lys Gly Ala Leu Ser Gly Ala Glu Ala Gly Glu Thr Lys Ala Glu Ile
 145 150 155 160
 Arg Leu Thr Leu Ser Thr Ser Lys Leu Pro Lys Pro Phe Gln Ile Asn
 165 170 175
 Ala Leu Thr Ser Gln Asn Trp His Leu Asp Ser Gly Trp Lys Pro Leu
 180 185 190
 Asn Ile Ile Gly Asn Lys
 195

<210> 369
 <211> 600
 <212> DNA
 <213> Neisseria meningitidis

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 <222> (125)..(125)
 <223> N= Unknown

<220>
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 <222> (147)..(147)
 <223> N= Unknown

<220>
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 <222> (150)..(150)
 <223> N= Unknown

<220>
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 <222> (187)..(189)
 <223> N= Unknown

<220>
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 <222> (193)..(194)
 <223> N= Unknown

<220>
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<222> (196)..(196)
 <223> N= Unknown

<220>
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 <222> (208)..(208)
 <223> N= Unknown

<220>
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 <222> (218)..(218)
 <223> N= Unknown

<220>
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 <222> (228)..(228)
 <223> N= Unknown

<220>
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 <222> (268)..(268)
 <223> N= Unknown

<220>
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 <222> (298)..(298)
 <223> N= Unknown

<220>
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 <222> (372)..(372)
 <223> N= Unknown

<400> 369
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 ataancgacg gcgggcagct ttccatnagn agccgcttcc aaaccgagct gcccgaccag 180
 ctccaannng cgnngngccg gggcgtgncg ctcaactnta ccttaagntg gcagctttcc 240
 gccccgataa tcgcttctta tcggtttnaa ttggggcaac tgattggcga tgacgacnat 300
 attgactaca aactgagttt ccatccgctg accaaccgct accgcgttac cgtcggcgcg 360
 ttttcgacag antacgacac cttggatgcg gcattgcgcg cgaccggcgc ggttgccaac 420
 tggaaagtcc tgaacaaagg cgcgctgtcc ggtgcggaag caggggaaac caaggcggaa 480
 atccgcctga cgctgtccac ttcaaaactg cccaagcctt ttcaaatcaa tgcattgact 540
 tctcaaaact ggcatttgga ttcgggttgg aaacctctaa acatcatcgg gaacaaataa 600

<210> 370
 <211> 199
 <212> PRT
 <213> Neisseria meningitidis

<220>
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 <222> (42)..(42)
 <223> Xaa= any amino acid

<220>

<221> misc_feature
 <222> (49)..(50)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (63)..(63)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (65)..(66)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (70)..(70)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (73)..(73)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (76)..(76)
 <223> Xaa= any amino acid

<220>
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 <222> (90)..(90)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (100)..(100)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (124)..(124)
 <223> Xaa= any amino acid

<400> 370
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 1 5 10 15
 Leu Leu Pro Met Leu Ser Val Leu Pro Asp Ala Ala Ala Glu Gly Ile
 20 25 30
 Asp Val Ser Arg Ala Glu Ala Arg Ile Xaa Asp Gly Gly Gln Leu Ser
 35 40 45
 Xaa Xaa Ser Arg Phe Gln Thr Glu Leu Pro Asp Gln Leu Gln Xaa Ala

50	55	60
Xaa Xaa Arg Gly Val Xaa Leu Asn Xaa Thr Leu Xaa Trp Gln Leu Ser		
65	70	75 80
Ala Pro Ile Ile Ala Ser Tyr Arg Phe Xaa Leu Gly Gln Leu Ile Gly		
	85	90 95
Asp Asp Asp Xaa Ile Asp Tyr Lys Leu Ser Phe His Pro Leu Thr Asn		
	100	105 110
Arg Tyr Arg Val Thr Val Gly Ala Phe Ser Thr Xaa Tyr Asp Thr Leu		
	115	120 125
Asp Ala Ala Leu Arg Ala Thr Gly Ala Val Ala Asn Trp Lys Val Leu		
	130	135 140
Asn Lys Gly Ala Leu Ser Gly Ala Glu Ala Gly Glu Thr Lys Ala Glu		
	145	150 155 160
Ile Arg Leu Thr Leu Ser Thr Ser Lys Leu Pro Lys Pro Phe Gln Ile		
	165	170 175
Asn Ala Leu Thr Ser Gln Asn Trp His Leu Asp Ser Gly Trp Lys Pro		
	180	185 190
Leu Asn Ile Ile Gly Asn Lys		
	195	

<210> 371
 <211> 600
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 371	
atggcttttta ttacgcgctt attcaaaagc attaaacaat ggcttgtgct gttgccgata	60
ctctccggtt tgccggacgc ggcggcggag ggcattgccg cgaccgcgc cgaagcgagg	120
ataaccgacg gcgggcggtt ttccatcagc agcgcgttcc aaaccgagct gcccgaccag	180
ctccaacagg cggttgcgcg gggcgtagcg ctcaacttta ccttaagctg gcagctttcc	240
gccccgacaa tcgcttctta tcggtttaaa ttggggcaac tgattggcga tgacgacaat	300
attgactaca aactaagttt ccatccgctg accaaccgct accgcgttac cgtcggcgca	360
ttttccaccg attacgacac tttggatgcg gcattgcgcg cgaccggcgc ggttgccaac	420
tggaaagtcc tgaacaaagg cgcgttgtcc ggtgcggaag caggggaaac caaggcggaa	480
atccgcctga cgctgtccac ttcaaaactg cccaagcctt tccaaatcaa cgcattgact	540
tctcaaaact ggcatttggg ttcggttggg aaacctctaa acatcatcgg gaacaaataa	600

<210> 372
 <211> 199
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 372	
Met Ala Phe Ile Thr Arg Leu Phe Lys Ser Ile Lys Gln Trp Leu Val	
1	5 10 15
Leu Leu Pro Ile Leu Ser Val Leu Pro Asp Ala Ala Ala Glu Gly Ile	

20	25	30
Ala Ala Thr Arg Ala Glu Ala Arg Ile Thr Asp Gly Gly Arg Leu Ser		
35	40	45
Ile Ser Ser Arg Phe Gln Thr Glu Leu Pro Asp Gln Leu Gln Gln Ala		
50	55	60
Leu Arg Arg Gly Val Pro Leu Asn Phe Thr Leu Ser Trp Gln Leu Ser		
65	70	75
Ala Pro Thr Ile Ala Ser Tyr Arg Phe Lys Leu Gly Gln Leu Ile Gly		
85	90	95
Asp Asp Asp Asn Ile Asp Tyr Lys Leu Ser Phe His Pro Leu Thr Asn		
100	105	110
Arg Tyr Arg Val Thr Val Gly Ala Phe Ser Thr Asp Tyr Asp Thr Leu		
115	120	125
Asp Ala Ala Leu Arg Ala Thr Gly Ala Val Ala Asn Trp Lys Val Leu		
130	135	140
Asn Lys Gly Ala Leu Ser Gly Ala Glu Ala Gly Glu Thr Lys Ala Glu		
145	150	155
Ile Arg Leu Thr Leu Ser Thr Ser Lys Leu Pro Lys Pro Phe Gln Ile		
165	170	175
Asn Ala Leu Thr Ser Gln Asn Trp His Leu Asp Ser Gly Trp Lys Pro		
180	185	190
Leu Asn Ile Ile Gly Asn Lys		
195		

<210> 373
 <211> 1419
 <212> DNA
 <213> Neisseria meningitidis

<400> 373
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 tcatcactct gccgctgctg tcgtggtatt tccccgccga cgacatcggg cgcacgtgc 120
 tgatgcagac ggcgcgggg ctgacggtgt cgggtgttg cctcgggctg gatcaggcat 180
 acgtccgcga atactatgcc accgccgaca aagacaacct gttcaaaacc ctgttcctgc 240
 cgccgctgct gtctgccgcc gcgatagccg ccctgctgct tccccgccg tccctgccgt 300
 ctgaaatcct gttttcactc gacgatgccg ccgccggcat cgggctggtg ctgtttgaa 360
 tgagcttctt gcccatccgc tttctcttac tggttttgcg tatggaagga cgcgcccttg 420
 ccttttcgtc cgcgcaactc gtgcccgaagc tcgccatcct gctgctgtgc cgctgacggt 480
 cgggctgctg cactttccag cgaacaccgc cgtcctgacc gccgtttacg cgctggcaaa 540
 ccttgccgcc gccgcctttt tgcgtgttca aaaccgatgc cgtctgaagg ccgtccggca 600
 cgcaccgttt tcgccgcgcg tctgcaccg ggggtgcgct acggcatacc gatcgactg 660
 agcagcatcg cctattgggg gctggcatcc gccgaccgtt tggtcctgaa aaaatatgcc 720
 ggccctggaac agctcggcgt ttattcgatg ggtatttcgt tcggcggggc ggcattattg 780
 ttccaaagca tcttttcac ggtctggaca ccgtatatatt tccgcgcaat cgaagaaaac 840
 gccccgcccg ctgcctctc ggcaacggca gaatccgcg ccgccctgct tgccctccgc 900

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ctctgctgac cggcattttc tcgccccttg cctccctcct gctgccggaa aactacgccg 960
ccgtccgggtt tatcgtcgta tcgtgtatgt gccgcgcgtg ttttgcaagc tggcggaat 1020
cagcggcate ggtttgaacg tcgttcgcaa aacgcgcccg atcgcgctcg ccaccttggg 1080
cgcgctggcg gcaaacctgc tgctgctggg gcttgaccgt gccgtaccgg cgaggccgcc 1140
ggcgcgggcg ttgcctgtgc cgcctcattc tggtgtttt ttgccttcaa gaccgaaagc 1200
tcytgccgcc tgtggcagcc gctcaaagc ctgccgcttt atctgcacac attgttctgc 1260
ctgacctcct cggcggccta cacctgcttc ggcacgccgg caaactatcc cctgtttgcc 1320
ggcgatatgg cggcatatct ggcaggctgc atcctgcgcc accggaaaga tttgcacaaa 1380
ctgtttcatt attgaaaaa acaaggtttc ccattatga 1419

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<210> 374
<211> 474
<212> PRT
<213> Neisseria meningitidis

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<220>
<221> misc_feature
<222> (8)..(8)
<223> Xaa= any amino acid

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<220>
<221> misc_feature
<222> (157)..(157)
<223> Xaa= any amino acid

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<220>
<221> misc_feature
<222> (213)..(213)
<223> Xaa= any amino acid

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<220>
<221> misc_feature
<222> (304)..(304)
<223> Xaa= any amino acid

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<220>
<221> misc_feature
<222> (332)..(332)
<223> Xaa= any amino acid

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<220>
<221> misc_feature
<222> (382)..(382)
<223> Xaa= any amino acid

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<400> 374
Met Asp Thr Lys Glu Ile Leu Xaa Tyr Ala Ala Gly Ser Ile Gly Ser
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Ala Val Leu Ala Val Ile Ile Leu Pro Leu Leu Ser Trp Tyr Phe Pro
          20          25          30

Ala Asp Asp Ile Gly Arg Ile Val Leu Met Gln Thr Ala Ala Gly Leu
          35          40          45

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Thr Val Ser Val Leu Cys Leu Gly Leu Asp Gln Ala Tyr Val Arg Glu

50

55

60

Tyr Tyr Ala Thr Ala Asp Lys Asp Thr Leu Phe Lys Thr Leu Phe Leu
65 70 75 80

Pro Pro Leu Leu Ser Ala Ala Ala Ile Ala Ala Leu Leu Leu Ser Arg
85 90 95

Pro Ser Leu Pro Ser Glu Ile Leu Phe Ser Leu Asp Asp Ala Ala Ala
100 105 110

Gly Ile Gly Leu Val Leu Phe Glu Leu Ser Phe Leu Pro Ile Arg Phe
115 120 125

Leu Leu Leu Val Leu Arg Met Glu Gly Arg Ala Leu Ala Phe Ser Ser
130 135 140

Ala Gln Leu Val Pro Lys Leu Ala Ile Leu Leu Leu Xaa Pro Leu Thr
145 150 155 160

Val Gly Leu Leu His Phe Pro Ala Asn Thr Ala Val Leu Thr Ala Val
165 170 175

Tyr Ala Leu Ala Asn Leu Ala Ala Ala Ala Phe Leu Leu Phe Gln Asn
180 185 190

Arg Cys Arg Leu Lys Ala Val Arg His Ala Pro Phe Ser Pro Ala Val
195 200 205

Leu His Arg Gly Xaa Arg Tyr Gly Ile Pro Ile Ala Leu Ser Ser Ile
210 215 220

Ala Tyr Trp Gly Leu Ala Ser Ala Asp Arg Leu Phe Leu Lys Lys Tyr
225 230 235 240

Ala Gly Leu Glu Gln Leu Gly Val Tyr Ser Met Gly Ile Ser Phe Gly
245 250 255

Gly Ala Ala Leu Leu Phe Gln Ser Ile Phe Ser Thr Val Trp Thr Pro
260 265 270

Tyr Ile Phe Arg Ala Ile Glu Glu Asn Ala Pro Pro Ala Arg Leu Ser
275 280 285

Ala Thr Ala Glu Ser Ala Ala Ala Leu Leu Ala Ser Ala Leu Cys Xaa
290 295 300

Thr Gly Ile Phe Ser Pro Leu Ala Ser Leu Leu Leu Pro Glu Asn Tyr
305 310 315 320

Ala Ala Val Arg Phe Ile Val Val Ser Cys Met Xaa Pro Pro Leu Phe
325 330 335

Cys Thr Leu Ala Glu Ile Ser Gly Ile Gly Leu Asn Val Val Arg Lys

340

345

350

Thr Arg Pro Ile Ala Leu Ala Thr Leu Gly Ala Leu Ala Ala Asn Leu
 355 360 365

Leu Leu Leu Gly Leu Asp Arg Ala Val Pro Ala Arg Pro Xaa Gly Ala
 370 375 380

Ala Val Ala Cys Ala Ala Ser Phe Trp Leu Phe Phe Ala Phe Lys Thr
 385 390 395 400

Glu Ser Ser Cys Arg Leu Trp Gln Pro Leu Lys Arg Leu Pro Leu Tyr
 405 410 415

Leu His Thr Leu Phe Cys Leu Thr Ser Ser Ala Ala Tyr Thr Cys Phe
 420 425 430

Gly Thr Pro Ala Asn Tyr Pro Leu Phe Ala Gly Val Trp Ala Ala Tyr
 435 440 445

Leu Ala Gly Cys Ile Leu Arg His Arg Lys Asp Leu His Lys Leu Phe
 450 455 460

His Tyr Leu Lys Lys Gln Gly Phe Pro Leu
 465 470

<210> 375

<211> 1422

<212> DNA

<213> Neisseria meningitidis

<400> 375

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ctgatgcaga	cggcggcggg	gctgacgggtg	tcggtgttgt	gcctcgggct	ggatcaggca	180
tacgtccgcg	aatactatgc	caccgcccac	aaagacacct	tgttcaaaac	cctgttctctg	240
ccgccgctgc	tgtctgccgc	cgcgatagcc	gccctgctgc	tttccccccc	gtccctgccg	300
tctgaaatcc	tgttttcact	cgacgatgcc	gccgcgggca	tcgggctggt	gctgtttgaa	360
ctgagcttcc	tgcccatccg	ctttctctta	ctggttttgc	gtatggaagg	acgcgcctt	420
gccttttctg	ccgcgcaact	cgtgcccaag	ctcgccatcc	tgctgctgct	gccgctgacg	480
gtcgggctgc	tgcaactttcc	agcgaacacc	gccgtcctga	ccgccgttta	cgcgctggca	540
aaccttgccg	ccgcgcctt	tttgcgtgtt	caaaaccgat	gccgtctgaa	ggccgtccgg	600
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ctgagcagca	tcgcctattg	ggggctggca	tccgccgacc	gtttgttcc	gaaaaaatat	720
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aacgccccgc	ccgccgcct	ctcggcaacg	gcagaatccg	ccgccgcct	gcttgccctcc	900
gccctctgcc	tgaccggcat	tttctcgcgc	cttgccctcc	tcctgctgcc	ggaaaactac	960
gccgcgctcc	ggtttatcgt	cgtatcgtgt	atgctgcgcg	cgtgttttg	cacgctggcg	1020
gaaatcagcg	gcacgggttt	gaacgtcgtc	cgcaaaacgc	gcccgatcgc	gctcgccacc	1080
ttgggcgcgc	tgggcgcaaa	cctgctgctg	ctggggcttg	ccgtgccgtc	cggcggcgcg	1140
cgcggcgcg	cgggtgcctg	tgccgcctca	ttctggtctg	ttttgcctt	caagaccgaa	1200
agctcctgcc	gacctgtggca	gccgtcaaaa	cgcctgcgcg	tttatctgca	cacattgttc	1260
tgccctgacct	cctcggcggc	ctacacctgc	ttcggcacgc	cggcaaaacta	tcccctgttt	1320
gccggcgctat	gggcggcata	tctggcaggc	tgcatcctgc	gccaccggaa	agatttgcac	1380

aaactgtttc attatttgaa aaaacaaggt ttccattat ga

1422

<210> 376

<211> 473

<212> PRT

<213> Neisseria meningitidis

<400> 376

Met Asp Thr Lys Glu Ile Leu Gly Tyr Ala Ala Gly Ser Ile Gly Ser
1 5 10 15

Ala Val Leu Ala Val Ile Ile Leu Pro Leu Leu Ser Trp Tyr Phe Pro
20 25 30

Ala Asp Asp Ile Gly Arg Ile Val Leu Met Gln Thr Ala Ala Gly Leu
35 40 45

Thr Val Ser Val Leu Cys Leu Gly Leu Asp Gln Ala Tyr Val Arg Glu
50 55 60

Tyr Tyr Ala Thr Ala Asp Lys Asp Thr Leu Phe Lys Thr Leu Phe Leu
65 70 75 80

Pro Pro Leu Leu Ser Ala Ala Ala Ile Ala Ala Leu Leu Leu Ser Arg
85 90 95

Pro Ser Leu Pro Ser Glu Ile Leu Phe Ser Leu Asp Asp Ala Ala Ala
100 105 110

Gly Ile Gly Leu Val Leu Phe Glu Leu Ser Phe Leu Pro Ile Arg Phe
115 120 125

Leu Leu Leu Val Leu Arg Met Glu Gly Arg Ala Leu Ala Phe Ser Ser
130 135 140

Ala Gln Leu Val Pro Lys Leu Ala Ile Leu Leu Leu Leu Pro Leu Thr
145 150 155 160

Val Gly Leu Leu His Phe Pro Ala Asn Thr Ala Val Leu Thr Ala Val
165 170 175

Tyr Ala Leu Ala Asn Leu Ala Ala Ala Ala Phe Leu Leu Phe Gln Asn
180 185 190

Arg Cys Arg Leu Lys Ala Val Arg His Ala Pro Phe Ser Pro Ala Val
195 200 205

Leu His Arg Gly Leu Arg Tyr Gly Ile Pro Ile Ala Leu Ser Ser Ile
210 215 220

Ala Tyr Trp Gly Leu Ala Ser Ala Asp Arg Leu Phe Leu Lys Lys Tyr
225 230 235 240

Ala Gly Leu Glu Gln Leu Gly Val Tyr Ser Met Gly Ile Ser Phe Gly
245 250 255

Gly Ala Ala Leu Leu Phe Gln Ser Ile Phe Ser Thr Val Trp Thr Pro
 260 265 270

Tyr Ile Phe Arg Ala Ile Glu Glu Asn Ala Pro Pro Ala Arg Leu Ser
 275 280 285

Ala Thr Ala Glu Ser Ala Ala Ala Leu Leu Ala Ser Ala Leu Cys Leu
 290 295 300

Thr Gly Ile Phe Ser Pro Leu Ala Ser Leu Leu Leu Pro Glu Asn Tyr
 305 310 315 320

Ala Ala Val Arg Phe Ile Val Val Ser Cys Met Leu Pro Pro Leu Phe
 325 330 335

Cys Thr Leu Ala Glu Ile Ser Gly Ile Gly Leu Asn Val Val Arg Lys
 340 345 350

Thr Arg Pro Ile Ala Leu Ala Thr Leu Gly Ala Leu Ala Ala Asn Leu
 355 360 365

Leu Leu Leu Gly Leu Ala Val Pro Ser Gly Gly Ala Arg Gly Ala Ala
 370 375 380

Val Ala Cys Ala Ala Ser Phe Trp Leu Phe Phe Ala Phe Lys Thr Glu
 385 390 395 400

Ser Ser Cys Arg Leu Trp Gln Pro Leu Lys Arg Leu Pro Leu Tyr Leu
 405 410 415

His Thr Leu Phe Cys Leu Thr Ser Ser Ala Ala Tyr Thr Cys Phe Gly
 420 425 430

Thr Pro Ala Asn Tyr Pro Leu Phe Ala Gly Val Trp Ala Ala Tyr Leu
 435 440 445

Ala Gly Cys Ile Leu Arg His Arg Lys Asp Leu His Lys Leu Phe His
 450 455 460

Tyr Leu Lys Lys Gln Gly Phe Pro Leu
 465 470

<210> 377
 <211> 1422
 <212> DNA
 <213> Neisseria meningitidis

<400> 377
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 ccgccgctgc tgtctgccgc cgcgatagcc gccctgctgc tttcccgccc atccctgccg 300
 tctgaaatcc tgttttcgct cgacgatgcc gccgcgggca tcgggctggt gctgtttgaa 360

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gccttttctg	ccgcgcaact	cgtgtccaag	ctcgccatcc	tgtgtgtgt	gccgtgacg	480
gtcgggctgc	tgcactttcc	ggcgaacacc	gccgtcctga	ccgcggttta	cgcgtggca	540
aaccttgccg	ccgcgcctt	tttgtgttt	caaaaccgat	gccgtctgaa	ggcgtccgg	600
cgcgcaccgt	tttcatccgc	cgtcctgcat	cgcggcctgc	gctacggcat	accgatcgca	660

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gccggcctag	aacagctcgg	cgtttattcg	atgggtat	cgttcggcgg	agcggcatta	780
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gccctctgcc	tgaccggcat	tttctgcgcc	ctcgcctccc	tctgtgtgcc	ggaaaactac	960
gccgcgctcc	ggtttatcgt	cgtatcgtgt	atgctgcctc	cgtgttttg	cacgtggta	1020
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cgcggcgcg	cggttgcctg	tgcgcctca	ttttggctgt	ttttgtttt	caagaccgaa	1200
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<210> 378
 <211> 473
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 378
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 35 40 45
 Thr Val Ser Val Leu Cys Leu Gly Leu Asp Gln Ala Tyr Val Arg Glu
 50 55 60
 Tyr Tyr Ala Ala Ala Asp Lys Asp Thr Leu Phe Lys Thr Leu Phe Leu
 65 70 75 80
 Pro Pro Leu Leu Ser Ala Ala Ala Ile Ala Ala Leu Leu Leu Ser Arg
 85 90 95
 Pro Ser Leu Pro Ser Glu Ile Leu Phe Ser Leu Asp Asp Ala Ala Ala
 100 105 110
 Gly Ile Gly Leu Val Leu Phe Glu Leu Ser Phe Leu Pro Ile Arg Phe
 115 120 125
 Leu Leu Leu Val Leu Arg Met Glu Gly Arg Ala Leu Ala Phe Ser Ser
 130 135 140
 Ala Gln Leu Val Ser Lys Leu Ala Ile Leu Leu Leu Leu Pro Leu Thr
 145 150 155 160

Val Gly Leu Leu His Phe Pro Ala Asn Thr Ala Val Leu Thr Ala Val
 165 170 175
 Tyr Ala Leu Ala Asn Leu Ala Ala Ala Ala Phe Leu Leu Phe Gln Asn
 180 185 190
 Arg Cys Arg Leu Lys Ala Val Arg Arg Ala Pro Phe Ser Ser Ala Val
 195 200 205
 Leu His Arg Gly Leu Arg Tyr Gly Ile Pro Ile Ala Leu Ser Ser Ile
 210 215 220
 Ala Tyr Trp Gly Leu Ala Ser Ala Asp Arg Leu Phe Leu Lys Lys Tyr
 225 230 235 240
 Ala Gly Leu Glu Gln Leu Gly Val Tyr Ser Met Gly Ile Ser Phe Gly
 245 250 255
 Gly Ala Ala Leu Leu Phe Gln Ser Ile Phe Ser Thr Val Trp Thr Pro
 260 265 270
 Tyr Ile Phe Arg Ala Ile Glu Ala Asn Ala Pro Pro Ala Arg Leu Ser
 275 280 285
 Ala Thr Ala Glu Ser Ala Ala Ala Leu Leu Ala Ser Ala Leu Cys Leu
 290 295 300
 Thr Gly Ile Phe Ser Pro Leu Ala Ser Leu Leu Leu Pro Glu Asn Tyr
 305 310 315 320
 Ala Ala Val Arg Phe Ile Val Val Ser Cys Met Leu Pro Pro Leu Phe
 325 330 335
 Cys Thr Leu Val Glu Ile Ser Gly Ile Gly Leu Asn Val Val Arg Lys
 340 345 350
 Thr Arg Pro Ile Ala Leu Ala Thr Leu Gly Ala Leu Ala Ala Asn Leu
 355 360 365
 Leu Leu Leu Gly Leu Ala Val Pro Ser Gly Gly Ala Arg Gly Ala Ala
 370 375 380
 Val Ala Cys Ala Ala Ser Phe Trp Leu Phe Phe Val Phe Lys Thr Glu
 385 390 395 400
 Ser Ser Cys Arg Leu Trp Gln Pro Leu Lys Arg Leu Pro Leu Tyr Met
 405 410 415
 His Thr Leu Phe Cys Leu Ala Ser Ser Ala Ala Tyr Thr Cys Phe Gly
 420 425 430
 Thr Pro Ala Asn Tyr Pro Leu Phe Ala Gly Val Trp Ala Val Tyr Leu
 435 440 445
 Ala Gly Cys Ile Leu Arg His Arg Lys Asp Leu His Lys Leu Phe His

450

455

460

Tyr Leu Lys Lys Gln Gly Phe Pro Leu

465

470

<210> 379

<211> 1422

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 379

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ctgatgcaga cggcgggcggg actgacggtg tcggtattgt gcctcgggct ggatcaggca      180
tacgtccgcg aatactatgc cgcgcgcgac aaagacactt tggtcaaaac cctgttcctg      240
ccgcgcgtgc tgttttccgc cgcgatagcc gccctgctgc ttccccgccc gtcctgccc      300
tctgaaatcc tgttttcgtc cgacgatgcc gccgcgggca tcgggctggg gctgtttgaa      360
ctgagcttcc tgcccatccg ctttctctta ctgggtttgc gtatggaagg gcgcgccctt      420
gccttttctg ccgcgcaact cgtgcccaaa ctgcgccattc tgctgctggt gccgctgacg      480
gtcgggctgc tgcactttcc ggcgaaacacc tccgtcctga ccgcggttta ccgctgggca      540
aaccttgccg ccgcgcgctt tttgctgttt caaaaccgat gccgtctgaa ggccgtccgg      600
cgcgcgcgct tttcgccgcg cgtcctgcac cgggggctgc gctacggcat accgctcgca      660
ctgagcagcc ttgcctattg ggggctggca tccgcgcgacc gtttgttcct gaaaaaatat      720
gcgggcctgg aacagctcgg cgtttattcg atgggtatct cgttcggcgg ggccggcatta      780
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gccgcgcgtc ggtttaccgt cgtatcgtgt atgctgccgc cgtgttttta cacgctgacc     1020
gaaatcagcg gcacgtggtt gaacgtcgct cgcgaaacgc gtccgatcgc gcttgccacc     1080
ttgggcgcgc tggcgccaaa cctgctgctg ctggggcttg ccgtaccgtc cggcggcacg     1140
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tgcttgccct cctcggcggc ctacacctgc ttcggcacac cggcaacta cccctgttt     1320
gccggcgctat gggcggcata tctggcaggc tgcacctgc gccaccggaa aaatttgcac     1380
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<210> 380

<211> 473

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 380

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Met Asp Thr Lys Glu Ile Leu Gly Tyr Ala Ala Gly Ser Ile Gly Ser
1           5           10           15

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Ala Val Leu Ala Val Ile Ile Leu Pro Leu Leu Ser Trp Tyr Phe Pro
          20           25           30

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Ala Asp Asp Ile Gly Arg Ile Val Leu Met Gln Thr Ala Ala Gly Leu
          35           40           45

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Thr Val Ser Val Leu Cys Leu Gly Leu Asp Gln Ala Tyr Val Arg Glu
          50           55           60

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Tyr Tyr Ala Ala Ala Asp Lys Asp Thr Leu Phe Lys Thr Leu Phe Leu

65		70		75		80									
Pro	Pro	Leu	Leu	Phe	Ser	Ala	Ala	Ile	Ala	Ala	Leu	Leu	Leu	Ser	Arg
				85					90					95	
Pro	Ser	Leu	Pro	Ser	Glu	Ile	Leu	Phe	Ser	Leu	Asp	Asp	Ala	Ala	Ala
			100					105					110		
Gly	Ile	Gly	Leu	Val	Leu	Phe	Glu	Leu	Ser	Phe	Leu	Pro	Ile	Arg	Phe
		115					120					125			
Leu	Leu	Leu	Val	Leu	Arg	Met	Glu	Gly	Arg	Ala	Leu	Ala	Phe	Ser	Ser
		130				135					140				
Ala	Gln	Leu	Val	Pro	Lys	Leu	Ala	Ile	Leu	Leu	Leu	Leu	Pro	Leu	Thr
145					150					155					160
Val	Gly	Leu	Leu	His	Phe	Pro	Ala	Asn	Thr	Ser	Val	Leu	Thr	Ala	Val
				165					170					175	
Tyr	Ala	Leu	Ala	Asn	Leu	Ala	Ala	Ala	Ala	Phe	Leu	Leu	Phe	Gln	Asn
			180					185					190		
Arg	Cys	Arg	Leu	Lys	Ala	Val	Arg	Arg	Ala	Pro	Phe	Ser	Pro	Ala	Val
		195					200					205			
Leu	His	Arg	Gly	Leu	Arg	Tyr	Gly	Ile	Pro	Leu	Ala	Leu	Ser	Ser	Leu
	210					215				220					
Ala	Tyr	Trp	Gly	Leu	Ala	Ser	Ala	Asp	Arg	Leu	Phe	Leu	Lys	Lys	Tyr
225					230					235					240
Ala	Gly	Leu	Glu	Gln	Leu	Gly	Val	Tyr	Ser	Met	Gly	Ile	Ser	Phe	Gly
				245					250					255	
Gly	Ala	Ala	Leu	Leu	Leu	Gln	Ser	Ile	Phe	Ser	Thr	Val	Trp	Thr	Pro
			260					265					270		
Tyr	Ile	Phe	Arg	Ala	Ile	Glu	Glu	Asn	Ala	Thr	Pro	Ala	Arg	Leu	Ser
		275					280					285			
Ala	Thr	Ala	Glu	Ser	Ala	Ala	Ala	Leu	Leu	Ala	Ser	Ala	Leu	Cys	Leu
		290				295					300				
Thr	Gly	Ile	Phe	Ser	Pro	Leu	Ala	Ser	Leu	Leu	Leu	Pro	Glu	Asn	Tyr
305					310					315					320
Ala	Ala	Val	Arg	Phe	Thr	Val	Val	Ser	Cys	Met	Leu	Pro	Pro	Leu	Phe
				325					330					335	
Tyr	Thr	Leu	Thr	Glu	Ile	Ser	Gly	Ile	Gly	Leu	Asn	Val	Val	Arg	Lys
			340					345					350		
Thr	Arg	Pro	Ile	Ala	Leu	Ala	Thr	Leu	Gly	Ala	Leu	Ala	Ala	Asn	Leu
		355					360					365			

Leu Leu Leu Gly Leu Ala Val Pro Ser Gly Gly Thr Arg Gly Ala Ala
 370 375 380

Val Ala Cys Ala Ala Ser Phe Trp Leu Phe Phe Val Phe Lys Thr Glu
 385 390 395 400

Ser Ser Cys Arg Leu Trp Gln Pro Leu Lys Arg Leu Pro Leu Tyr Met
 405 410 415

His Thr Leu Phe Cys Leu Ala Ser Ser Ala Ala Tyr Thr Cys Phe Gly
 420 425 430

Thr Pro Ala Asn Tyr Pro Leu Phe Ala Gly Val Trp Ala Ala Tyr Leu
 435 440 445

Ala Gly Cys Ile Leu Arg His Arg Lys Asn Leu His Lys Leu Phe His
 450 455 460

Tyr Leu Lys Lys Gln Gly Phe Pro Leu
 465 470

<210> 381
 <211> 637
 <212> DNA
 <213> Neisseria meningitidis

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 gacaagcagc ccgttgccga taaagccgac gaggttgaag aaaaggcggg cgagccggaa 180
 cgggaagagc cggacggaca ggcagtgcgt aagaaagcgc tgacggaaga gcgtgaacaa 240
 accgtcaggg aaaaagcgca gaagaaagat gccgaaacgg ttaaaatata agcggtaaaa 300
 ccgtctaaag aaacagagaa aaaagcttca aaagaagaga aaaaggcggc gaaggaaaaa 360
 gttgcaccca aaccaacccc ggaacaaatc ctcaacagcg gcagcatcga aaamgcgcgc 420
 agtgccgccc ccaaagaagt gcagaaaatg aaaacgtccg acaaggcgga agcaacgcat 480
 tatctgcaaa tgggcgcgta tgccgaccgt cagagcgcgg aagggcagcg tgccaaactg 540
 gcaatcttgg gcatatcttc caaggtggtc gggttatcagg cgggacataa aacgctttac 600
 cgggtgcaaa gcggcaatat gtctgccgat gcggtga 637

<210> 382
 <211> 212
 <212> PRT
 <213> Neisseria meningitidis

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 <222> (138)..(138)
 <223> Xaa= any amino acid

<220>
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 <223> Xaa= any amino acid

<220>

<221> misc_feature
 <222> (159)..(159)
 <223> Xaa= any amino acid

<400> 382

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 20 25 30

Gln Ser Asp Ala Glu Asn Ala Ala Asp Lys Gln Pro Val Ala Asp Lys
 35 40 45

Ala Asp Glu Val Glu Glu Lys Ala Gly Glu Pro Glu Arg Glu Glu Pro
 50 55 60

Asp Gly Gln Ala Val Arg Lys Lys Ala Leu Thr Glu Glu Arg Glu Gln
 65 70 75 80

Thr Val Arg Glu Lys Ala Gln Lys Lys Asp Ala Glu Thr Val Lys Ile
 85 90 95

Gln Ala Val Lys Pro Ser Lys Glu Thr Glu Lys Lys Ala Ser Lys Glu
 100 105 110

Glu Lys Lys Ala Ala Lys Glu Lys Val Ala Pro Lys Pro Thr Pro Glu
 115 120 125

Gln Ile Leu Asn Ser Gly Ser Ile Glu Xaa Ala Arg Ser Ala Ala Ala
 130 135 140

Lys Glu Val Gln Lys Met Xaa Asn Val Arg Gln Gly Gly Ser Xaa Arg
 145 150 155 160

Ile Ile Cys Lys Trp Ala Arg Met Pro Thr Val Arg Ala Arg Lys Gly
 165 170 175

Ser Val Pro Asn Trp Gln Ser Trp Ala Tyr Leu Pro Arg Trp Ser Val
 180 185 190

Ile Arg Arg Asp Ile Lys Arg Phe Thr Gly Cys Lys Ala Ala Ile Cys
 195 200 205

Leu Pro Met Arg
 210

<210> 383
 <211> 870
 <212> DNA
 <213> Neisseria meningitidis

<400> 383

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gcgttcaaaa	tcccggcttc	gtcgaagcag	cctgcagaaa	cggaatcct	gaaaccgaaa	180

aaccagccta	aggaagacat	ccaacctgaa	cgggccgatac	aaaacgcctt	gtccgaaccg	240
gatgctgcga	cagaggcaga	gcagtcggat	gcggaaaaag	ctgccgacaa	gcagcccgtt	300
gccgataaag	ccgacgaggt	tgaagaaaag	gcgggacgagc	cggaaacggga	agagccggac	360
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gcgcagaaga	aagatgccga	aacggttaaa	aaacaagcgg	taaaaccgtc	taaagaaaca	480
gagaaaaaag	cttcaaaaga	agagaaaaag	gcggcgaaag	aaaaagtgc	acccaaacca	540
accccggaac	aaatcctcaa	cagcggcagc	atcgaaaaag	cgcgcagtgc	cgccgccaaa	600
gaagtgcaga	aatgaaaac	gtccgacaag	gcggaagcaa	cgcattatct	gcaaattgggc	660
gcgtatgccg	accgtcagag	cgcggaaggg	cagcgtgccca	aactggcaat	cttgggcata	720
tcttccaagg	tggtcggtta	tcaggcggga	cataaaacgc	tttaccgggt	gcaaagcggc	780
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agcctgatcc gttctatcga aagcaaataa 870

<210> 384

<211> 289

<212> PRT

<213> Neisseria meningitidis

<400> 384

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			20					25					30		

Tyr	Leu	Asn	Gln	Ser	Gly	Gln	Asn	Ala	Phe	Lys	Ile	Pro	Ala	Ser	Ser
		35					40					45			

Lys	Gln	Pro	Ala	Glu	Thr	Glu	Ile	Leu	Lys	Pro	Lys	Asn	Gln	Pro	Lys
		50				55					60				

Glu	Asp	Ile	Gln	Pro	Glu	Pro	Ala	Asp	Gln	Asn	Ala	Leu	Ser	Glu	Pro
65					70				75					80	

Asp	Ala	Ala	Thr	Glu	Ala	Glu	Gln	Ser	Asp	Ala	Glu	Lys	Ala	Ala	Asp
			85					90					95		

Lys	Gln	Pro	Val	Ala	Asp	Lys	Ala	Asp	Glu	Val	Glu	Glu	Lys	Ala	Gly
			100					105					110		

Glu	Pro	Glu	Arg	Glu	Glu	Pro	Asp	Gly	Gln	Ala	Val	Arg	Lys	Lys	Ala
		115					120					125			

Leu	Thr	Glu	Glu	Arg	Glu	Gln	Thr	Val	Arg	Glu	Lys	Ala	Gln	Lys	Lys
	130					135					140				

Asp	Ala	Glu	Thr	Val	Lys	Lys	Gln	Ala	Val	Lys	Pro	Ser	Lys	Glu	Thr
145					150					155				160	

Glu	Lys	Lys	Ala	Ser	Lys	Glu	Glu	Lys	Lys	Ala	Ala	Lys	Glu	Lys	Val
			165						170				175		

Ala	Pro	Lys	Pro	Thr	Pro	Glu	Gln	Ile	Leu	Asn	Ser	Gly	Ser	Ile	Glu
			180					185					190		

Lys Ala Arg Ser Ala Ala Ala Lys Glu Val Gln Lys Met Lys Thr Ser
 195 200 205

Asp Lys Ala Glu Ala Thr His Tyr Leu Gln Met Gly Ala Tyr Ala Asp
 210 215 220

Arg Gln Ser Ala Glu Gly Gln Arg Ala Lys Leu Ala Ile Leu Gly Ile
 225 230 235 240

Ser Ser Lys Val Val Gly Tyr Gln Ala Gly His Lys Thr Leu Tyr Arg
 245 250 255

Val Gln Ser Gly Asn Met Ser Ala Asp Ala Val Lys Lys Met Gln Asp
 260 265 270

Glu Leu Lys Lys His Glu Val Ala Ser Leu Ile Arg Ser Ile Glu Ser
 275 280 285

Lys

<210> 385
 <211> 770
 <212> DNA
 <213> Neisseria meningitidis

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 aaaacgcctt gtccgaaccg gatgctgcga aagaggcaga gcagtcggat gcggaaaaag 180
 ctgccgacaa gcagcccgtt gccgacaaag ccgacgaggt tgaggaaaag gcggacgagc 240
 cggagcggga aaagtccgac ggacaggcag tgcgcaagaa agcactgacg gaagagcgtg 300
 aacaaaccgt cggggaaaaa gcgcagaaga aagatgccga aacggttaaa aaacaagcgg 360
 taaaaccatc taaagaaaca gagaaaaaag cttcaaaaaga agagaaaaag gcggagaagg 420
 aaaaagttgc acccaaaccg accccggaac aaatcctcaa cagcggcagc atcgaaaaag 480
 cgcgcagtg cgtgtccaaa gaagtgcaga aaatgaaaac gcccgacaag gcggaagcaa 540
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 aactggcaat cttgggcata ttttccaagg tggtcgggta tcaggcggga cataaaacgc 660
 tttaccgggt gcaaagcggc aatatgtctg ccgatgccgt gaaaaaatg caggacgagt 720
 tgaaaaaaca tgaagtcgcc agcctgatcc gttctatcga aagcaaataa 770

<210> 386
 <211> 289
 <212> PRT
 <213> Neisseria meningitidis

<400> 386
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 Tyr Leu Asn Gln Ser Gly Gln Asn Ala Phe Lys Ile Pro Val Pro Ser
 35 40 45

Lys Gln Pro Ala Glu Thr Glu Ile Leu Lys Pro Lys Asn Gln Pro Lys
 50 55 60
 Glu Asp Ile Gln Pro Glu Pro Ala Asp Gln Asn Ala Leu Ser Glu Pro
 65 70 75 80
 Asp Ala Ala Lys Glu Ala Glu Gln Ser Asp Ala Glu Lys Ala Ala Asp
 85 90 95
 Lys Gln Pro Val Ala Asp Lys Ala Asp Glu Val Glu Glu Lys Ala Asp
 100 105 110
 Glu Pro Glu Arg Glu Lys Ser Asp Gly Gln Ala Val Arg Lys Lys Ala
 115 120 125
 Leu Thr Glu Glu Arg Glu Gln Thr Val Gly Glu Lys Ala Gln Lys Lys
 130 135 140
 Asp Ala Glu Thr Val Lys Lys Gln Ala Val Lys Pro Ser Lys Glu Thr
 145 150 155 160
 Glu Lys Lys Ala Ser Lys Glu Glu Lys Lys Ala Glu Lys Glu Lys Val
 165 170 175
 Ala Pro Lys Pro Thr Pro Glu Gln Ile Leu Asn Ser Gly Ser Ile Glu
 180 185 190
 Lys Ala Arg Ser Ala Ala Ala Lys Glu Val Gln Lys Met Lys Thr Pro
 195 200 205
 Asp Lys Ala Glu Ala Thr His Tyr Leu Gln Met Gly Ala Tyr Ala Asp
 210 215 220
 Arg Arg Ser Ala Glu Gly Gln Arg Ala Lys Leu Ala Ile Leu Gly Ile
 225 230 235 240
 Ser Ser Lys Val Val Gly Tyr Gln Ala Gly His Lys Thr Leu Tyr Arg
 245 250 255
 Val Gln Ser Gly Asn Met Ser Ala Asp Ala Val Lys Lys Met Gln Asp
 260 265 270
 Glu Leu Lys Lys His Glu Val Ala Ser Leu Ile Arg Ser Ile Glu Ser
 275 280 285

Lys

<210> 387
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>

<221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 387
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8

<210> 388
 <211> 267
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 388
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Tyr Leu Asn Gln Gly Gly Gln Asn Ala Phe Lys Ile Pro Ala Pro Ser	35	40	45
Lys Gln Pro Ala Glu Thr Glu Ile Leu Lys Leu Lys Asn Gln Pro Lys	50	55	60
Glu Asp Ile Gln Pro Glu Pro Ala Asp Gln Asn Ala Leu Ser Glu Pro	65	70	75
Asp Val Ala Lys Glu Ala Glu Gln Ser Asp Ala Glu Lys Ala Ala Asp	85	90	95
Lys Gln Pro Val Ala Asp Lys Ala Asp Glu Val Glu Glu Lys Ala Gly	100	105	110
Glu Pro Glu Arg Glu Glu Pro Asp Gly Gln Ala Val Arg Lys Lys Ala	115	120	125
Leu Thr Glu Glu Arg Glu Gln Thr Val Arg Glu Lys Ala Gln Lys Lys	130	135	140
Asp Ala Glu Thr Val Lys Lys Lys Ala Val Lys Pro Ser Lys Glu Thr	145	150	155
Glu Lys Lys Ala Ser Lys Glu Glu Lys Lys Ala Ala Lys Glu Lys Val	165	170	175
Ala Pro Lys Pro Thr Pro Glu Gln Ile Leu Asn Ser Arg Ser Ile Glu	180	185	190
Lys Ala Arg Ser Ala Ala Ala Lys Glu Val Gln Lys Met Lys Asn Phe	195	200	205
Gly Gln Gly Gly Ser Gln Arg Ile Ile Cys Lys Trp Ala Arg Met Pro	210	215	220

Asn Pro Gly Ala Arg Lys Gly Ser Val Pro Asn Trp Gln Ser Trp Ala
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Tyr Leu Pro Lys Trp Ser Ala Ile Arg Arg Asp Ile Lys Arg Phe Thr
245 250 255

Ala Cys Lys Ala Ala Ile Cys Pro Pro Met Arg
260 265

<210> 389
<211> 873
<212> DNA
<213> Neisseria gonorrhoeae

<400> 389

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atactggcaa cggtcattat tgccggtatt ttgctttatc tgaaccaggg cggtcaaaat 120
gcgttcaaaa tcccggctcc gtcgaagcag cctgcagaaa cggaatcct gaaactgaaa 180
aaccagccta aggaagacat ccaacctgaa ccggccgcatc aaaacgcctt gtccgaaccg 240
gatgttgcca aagaggcaga gcagtcggat gcggaaaaag ctgccgacaa gcagcccggt 300
gccgacaaag ccgacgaggt tgaagaaaag gcgggcgagc cggaacggga agagccggac 360
ggacaggcag tgcgcaagaa agcactgacg gaagagcgtg aacaaaccgt cagggaaaaa 420
gcgcagaaga aagatgccga aacggttaaa aaacaagcgg taaaaccgtc taaagaaaca 480
gagaaaaaag cttcaaaaga agagaaaaag gcggcgaaaag aaaaagttgc acccaaaccg 540
accccggaac aaatcctcaa cagccgcagc atcgaaaaag cgcgtagtgc cgctgccaaa 600
gaagtgcaga aaatgaaaaa ctttgggcaa ggcggaagcc aacgcattat ctgcaaattg 660
gcgcgtatgc cgaccgtccg gagcgcgga gggcagcgtg ccaaactggc aatcttgggc 720
atatcttccg aagtggtcgg ctatcaggcg ggacataaaa cgctttaccg cgtgcaaagc 780
ggcaatatgt ccgccgatgc ggtgaaaaaa atgcaggacg agttgaaaaa gcatgggggt 840
gccagcctga tccgtgcgat tgaaggcaaa taa 873
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<210> 390
<211> 290
<212> PRT
<213> Neisseria gonorrhoeae

<400> 390

Met Phe Met Asn Lys Phe Ser Gln Ser Gly Lys Gly Leu Ser Gly Phe
1 5 10 15

Phe Phe Gly Leu Ile Leu Ala Thr Val Ile Ile Ala Gly Ile Leu Leu
20 25 30

Tyr Leu Asn Gln Gly Gly Gln Asn Ala Phe Lys Ile Pro Ala Pro Ser
35 40 45

Lys Gln Pro Ala Glu Thr Glu Ile Leu Lys Leu Lys Asn Gln Pro Lys
50 55 60

Glu Asp Ile Gln Pro Glu Pro Ala Asp Gln Asn Ala Leu Ser Glu Pro
65 70 75 80

Asp Val Ala Lys Glu Ala Glu Gln Ser Asp Ala Glu Lys Ala Ala Asp
85 90 95

Lys Gln Pro Val Ala Asp Lys Ala Asp Glu Val Glu Glu Lys Ala Gly
 100 105 110
 Glu Pro Glu Arg Glu Glu Pro Asp Gly Gln Ala Val Arg Lys Lys Ala
 115 120 125
 Leu Thr Glu Glu Arg Glu Gln Thr Val Arg Glu Lys Ala Gln Lys Lys
 130 135 140
 Asp Ala Glu Thr Val Lys Lys Gln Ala Val Lys Pro Ser Lys Glu Thr
 145 150 155 160
 Glu Lys Lys Ala Ser Lys Glu Glu Lys Lys Ala Ala Lys Glu Lys Val
 165 170 175
 Ala Pro Lys Pro Thr Pro Glu Gln Ile Leu Asn Ser Arg Ser Ile Glu
 180 185 190
 Lys Ala Arg Ser Ala Ala Ala Lys Glu Val Gln Lys Met Lys Asn Phe
 195 200 205
 Gly Gln Gly Gly Ser Gln Arg Ile Ile Cys Lys Trp Ala Arg Met Pro
 210 215 220
 Thr Val Arg Ser Ala Glu Gly Gln Arg Ala Lys Leu Ala Ile Leu Gly
 225 230 235 240
 Ile Ser Ser Glu Val Val Gly Tyr Gln Ala Gly His Lys Thr Leu Tyr
 245 250 255
 Arg Val Gln Ser Gly Asn Met Ser Ala Asp Ala Val Lys Lys Met Gln
 260 265 270
 Asp Glu Leu Lys Lys His Gly Val Ala Ser Leu Ile Arg Ala Ile Glu
 275 280 285
 Gly Lys
 290

<210> 391
 <211> 668
 <212> DNA
 <213> Neisseria meningitidis

<400> 391
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 tgcacgcggt tgtgcggcgg attaagcagc gcgtttgsst ccaactcccc ccgcatatca 120
 accgcttttg gctgatcctg ctgcttaaca caggacgggt aagcagctat acggcaatcg 180
 gcctgatact cggattaatc ggacaggctg gcgtttcact cgaccaaacc cgcgtcctgc 240
 agaataattt atacacggcc gccaacctcc tgctgctctt tttaggctta tacttgagcg 300
 gtatttcttc cttggcggca aaaatcgaga aaatcggcaa accgatatgg cggaacctga 360
 acccgatact caaccggctg ttaccataaa aatccatacc cgctgcctt gcggtcggaa 420
 tattatgggg ctggctgccg tgcggactgg tttacagcgc gtcgctttac gcgctgggaa 480
 gcggtagtgc ggcaacgggc gggttatata tgcttgctt tgcactgggt acgctgcccc 540
 atcttttagc aatcggcatt ttttccctgc aactgaawaa aatcatgcaa aaccgatata 600

tccgcctgtg tacgggatta tccgtatcat tatgggcatt atggaaactt gccgtcctgt 660
ggctgtaa 668

<210> 392
<211> 222
<212> PRT
<213> Neisseria meningitidis

<220>
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<222> (15)..(15)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (33)..(34)
<223> Xaa= any amino acid

<220>
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<222> (193)..(193)
<223> Xaa= any amino acid

<400> 392
Met Asn His Asp Ile Thr Phe Leu Thr Leu Phe Leu Leu Gly Xaa Phe
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Gly Gly Thr His Cys Ile Gly Met Cys Gly Gly Leu Ser Ser Ala Phe
20 25 30
Xaa Xaa Gln Leu Pro Pro His Ile Asn Arg Phe Trp Leu Ile Leu Leu
35 40 45
Leu Asn Thr Gly Arg Val Ser Ser Tyr Thr Ala Ile Gly Leu Ile Leu
50 55 60
Gly Leu Ile Gly Gln Val Gly Val Ser Leu Asp Gln Thr Arg Val Leu
65 70 75 80
Gln Asn Ile Leu Tyr Thr Ala Ala Asn Leu Leu Leu Leu Phe Leu Gly
85 90 95
Leu Tyr Leu Ser Gly Ile Ser Ser Leu Ala Ala Lys Ile Glu Lys Ile
100 105 110
Gly Lys Pro Ile Trp Arg Asn Leu Asn Pro Ile Leu Asn Arg Leu Leu
115 120 125
Pro Ile Lys Ser Ile Pro Ala Cys Leu Ala Val Gly Ile Leu Trp Gly
130 135 140
Trp Leu Pro Cys Gly Leu Val Tyr Ser Ala Ser Leu Tyr Ala Leu Gly
145 150 155 160
Ser Gly Ser Ala Ala Thr Gly Gly Leu Tyr Met Leu Ala Phe Ala Leu
165 170 175

Gly Thr Leu Pro Asn Leu Leu Ala Ile Gly Ile Phe Ser Leu Gln Leu
180 185 190

Xaa Lys Ile Met Gln Asn Arg Tyr Ile Arg Leu Cys Thr Gly Leu Ser
195 200 205

Val Ser Leu Trp Ala Leu Trp Lys Leu Ala Val Leu Trp Leu
210 215 220

<210> 393
<211> 669
<212> DNA
<213> Neisseria meningitidis

<400> 393
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tgcacgggta tgtgcggcgg attaagcagc gcggttgccg tccaactccc ccgcatatc 120

aaccgctttt ggctgatact gctgcttaac acaggacggg taagcagcta tacggcaatc 180
ggcctgatac tcggattaat cggacaggtc ggcgtttcac tcgaccaaac ccgctgctg 240
cagaatattt tatacacggc cgccaacctc ctgctgctct ttttaggctt atacttgagc 300
ggtattttctt ccttggcggc aaaaatcgag aaaatcggca aaccgatatg gcggaacctg 360
aaccggatac tcaaccggct gttaccata aaatccatac ccgctgcct tgcggtcgga 420
atattatggg gctggctgcc gtgcggactg gtttacagcg cgtcgcttta cgcgctggga 480
agcggtagtg cggcaacggg cgggttatat atgcttgcc ttgcaactggg tacgctgccc 540
aatcttttag caatcggcat tttttccctg caactgaaaa aaatcatgca aaaccgatat 600
atccgctgt gtacgggatt atccgtatca ttatgggcat tatggaaact tgccgtcctg 660
tggtgttaa 669

<210> 394
<211> 222
<212> PRT
<213> Neisseria meningitidis

<400> 394
Met Asn His Asp Ile Thr Phe Leu Thr Leu Phe Leu Leu Gly Phe Phe
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Gly Gly Thr His Cys Ile Gly Met Cys Gly Gly Leu Ser Ser Ala Phe
20 25 30

Ala Leu Gln Leu Pro Pro His Ile Asn Arg Phe Trp Leu Ile Leu Leu
35 40 45

Leu Asn Thr Gly Arg Val Ser Ser Tyr Thr Ala Ile Gly Leu Ile Leu
50 55 60

Gly Leu Ile Gly Gln Val Gly Val Ser Leu Asp Gln Thr Arg Val Leu
65 70 75 80

Gln Asn Ile Leu Tyr Thr Ala Ala Asn Leu Leu Leu Phe Leu Gly
85 90 95

Leu Tyr Leu Ser Gly Ile Ser Ser Leu Ala Ala Lys Ile Glu Lys Ile
100 105 110

Gly Lys Pro Ile Trp Arg Asn Leu Asn Pro Ile Leu Asn Arg Leu Leu
 115 120 125

Pro Ile Lys Ser Ile Pro Ala Cys Leu Ala Val Gly Ile Leu Trp Gly
 130 135 140

Trp Leu Pro Cys Gly Leu Val Tyr Ser Ala Ser Leu Tyr Ala Leu Gly
 145 150 155 160

Ser Gly Ser Ala Ala Thr Gly Gly Leu Tyr Met Leu Ala Phe Ala Leu
 165 170 175

Gly Thr Leu Pro Asn Leu Leu Ala Ile Gly Ile Phe Ser Leu Gln Leu
 180 185 190

Lys Lys Ile Met Gln Asn Arg Tyr Ile Arg Leu Cys Thr Gly Leu Ser
 195 200 205

Val Ser Leu Trp Ala Leu Trp Lys Leu Ala Val Leu Trp Leu
 210 215 220

<210> 395
 <211> 669
 <212> DNA
 <213> Neisseria meningitidis

<220>
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 <222> (9)..(9)
 <223> N= Unknown

<220>
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 <222> (129)..(129)
 <223> N= Unknown

<220>
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 <222> (238)..(238)
 <223> N= Unknown

<220>
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 <222> (548)..(548)
 <223> N= Unknown

<220>
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 <222> (577)..(577)
 <223> N= Unknown

<400> 395
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 tgcacggta tgtgcggcgg attaagcagc gcgtttgcgc tccaactccc cccgcatatc 120

aacgccttnt	ggctgacct	gctgcttaac	acaggacggg	taagcagcta	tacggcaatc	180
ggcctgatac	tcgattaat	cggacaggtc	ggcgtttcac	tcgaccaaac	ccgcgtcntg	240
cagaatattt	tatacacggc	cgccaacctc	ctgctgctct	ttttaggctt	atacttgagc	300
ggtatttctt	ccttggcggc	aaaaatcgag	aaaatcggca	aaccgatatg	gcggaacctg	360
aaccgatac	tcaaccggct	gttacccata	aaatccatac	ccgcctgcct	tcgggtcgga	420
atattatggg	gctggctgcc	gtgcggacta	gtttacagcg	cgtcgcttta	cgcgctggga	480
agcggtagtg	cggcaacggg	cgggttatat	atgcttgcc	ttgcactggg	tacgctgcc	540
aatctttngg	caatcggc	ttttccctg	caactgnaaa	aaatcatgca	aaaccgatat	600
atccgcctgt	gtacgggatt	atccgtatca	ttatgggc	tatggaaact	tgccgtcctg	660
tggtgtaa						669

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<223> Xaa= any amino acid
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<220>  
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<222> (80)..(80)  
<223> Xaa= any amino acid
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<220>
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<222> (193)..(193)
<223> Xaa= any amino acid
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Gln Asn Ile Leu Tyr Thr Ala Ala Asn Leu Leu Leu Leu Phe Leu Gly
85 90 95

Leu Tyr Leu Ser Gly Ile Ser Ser Leu Ala Ala Lys Ile Glu Lys Ile
100 105 110

Gly Lys Pro Ile Trp Arg Asn Leu Asn Pro Ile Leu Asn Arg Leu Leu
115 120 125

Pro Ile Lys Ser Ile Pro Ala Cys Leu Ala Val Gly Ile Leu Trp Gly
130 135 140

Trp Leu Pro Cys Gly Leu Val Tyr Ser Ala Ser Leu Tyr Ala Leu Gly
145 150 155 160

Ser Gly Ser Ala Ala Thr Gly Gly Leu Tyr Met Leu Ala Phe Ala Leu
165 170 175

Gly Thr Leu Pro Asn Leu Xaa Ala Ile Gly Ile Phe Ser Leu Gln Leu
180 185 190

Xaa Lys Ile Met Gln Asn Arg Tyr Ile Arg Leu Cys Thr Gly Leu Ser
195 200 205

Val Ser Leu Trp Ala Leu Trp Lys Leu Ala Val Leu Trp Leu
210 215 220

<210> 397
<211> 669
<212> DNA
<213> Neisseria gonorrhoeae

<400> 397
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tgcacggtta tgtgcggcgg attaagcagc gcgtttgcgc tccaactccc cccgcatatc 120
aaccgctttt ggctgattct gctgcttaac acaggacgga taagcagcta tacggcaatc 180
ggcctgatgc tcggattaat cggacaactc ggcatttcac tcgaccaaac ccgcgtcctg 240
caaaatattt tatacacagc ctccaacctc ctgctgctct ttttaggctt atacttgagc 300
ggtattttctt ccttggcggc aaaaatcgag aaaatcggca aaccgatatg gcgcaacctg 360
aaccggatac tcaaccggct gctgcccata aaatccatac ccgcctgcct tgctgtcgga 420
atattatggg gctggctgcc gtgcggactg gtttacagcg catcacttta cgcgctggga 480
agcggtagtg cgacaaccgg cggactgtat atgcttgctt ttgactggg tacgctgccc 540
aatcttttgg caatcggcat tttttccctg caactgaaaa aaatcatgca aaaccgatat 600
atccgcctgt gtacaggatt atccgtatca ttatgggcat tatggaagct tgccgtcctg 660
tggtctgtaa 669

<210> 398
<211> 222
<212> PRT
<213> Neisseria gonorrhoeae

<400> 398
Met Asn His Asp Ile Thr Phe Leu Thr Leu Phe Leu Leu Gly Phe Phe
1 5 10 15

Gly Gly Thr His Cys Ile Gly Met Cys Gly Gly Leu Ser Ser Ala Phe
20 25 30

Ala Leu Gln Leu Pro Pro His Ile Asn Arg Phe Trp Leu Ile Leu Leu
35 40 45

Leu Asn Thr Gly Arg Ile Ser Ser Tyr Thr Ala Ile Gly Leu Met Leu
50 55 60

Gly Leu Ile Gly Gln Leu Gly Ile Ser Leu Asp Gln Thr Arg Val Leu
65 70 75 80

Gln Asn Ile Leu Tyr Thr Ala Ser Asn Leu Leu Leu Phe Leu Gly
85 90 95

Leu Tyr Leu Ser Gly Ile Ser Ser Leu Ala Ala Lys Ile Glu Lys Ile
100 105 110

Gly Lys Pro Ile Trp Arg Asn Leu Asn Pro Ile Leu Asn Arg Leu Leu
115 120 125

Pro Ile Lys Ser Ile Pro Ala Cys Leu Ala Val Gly Ile Leu Trp Gly

130

135

140

Trp Leu Pro Cys Gly Leu Val Tyr Ser Ala Ser Leu Tyr Ala Leu Gly
145 150 155 160

Ser Gly Ser Ala Thr Thr Gly Gly Leu Tyr Met Leu Ala Phe Ala Leu
165 170 175

Gly Thr Leu Pro Asn Leu Leu Ala Ile Gly Ile Phe Ser Leu Gln Leu
180 185 190

Lys Lys Ile Met Gln Asn Arg Tyr Ile Arg Leu Cys Thr Gly Leu Ser
195 200 205

Val Ser Leu Trp Ala Leu Trp Lys Leu Ala Val Leu Trp Leu
210 215 220

<210> 399

<211> 832

<212> DNA

<213> Neisseria meningitidis

<400> 399

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gggtgcgttt	taccgtggcg	gcggcggtat	tgtttgttt	gctggcactg	ggcgggcggc	180
tgccgaagcg	gcgaggattt	ttcttggtgc	tcattcaggc	tgctgctgct	cggcgtggcg	240
ggcatttcgg	caaactttgt	gctgattgcc	caagggtgc	attatatttc	gccgaccacg	300
acgcaggttt	tgtggcagat	ttcgccgttt	acgatgattg	twgtcgggtg	gttggtgttt	360
aaagaccgga	tgactgccgc	tcagaaaatc	ggcttggttt	tgctgcttgc	cggtttgctt	420
atgtatttta	acgataaatt	cggcgagttg	tcgggtttgg	gcgcgtatgc	aagggcggtg	480
tgctgtgtgc	ggcaggcagt	atggcatggg	tgtgtaatgc	cgtggcgcaa	aagctgctgt	540
cggcgcaatt	cgggcgcgca	cagattctgc	tgttgattta	tgccgcaagt	gccgcgctgt	600

tcctgccgtt	tgccgaaccg	gcacacatcg	gaagtatgga	cggtacgttg	gcgtgggtat	660
gtattgcgta	ttgctgcttg	aatacgttaa	tcggttacgg	ctcgttcggc	gaggcggtga	720
aacattggga	ggcttccaaa	gtcagcgcg	taacaacctt	gctccccgtg	tttaccgtaa	780
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<210> 400
 <211> 277
 <212> PRT
 <213> Neisseria meningitidis

<220>
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 <222> (25)..(25)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (157)..(157)
 <223> Xaa= any amino acid

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 Met Glu Asn Gln Arg Pro Leu Leu Gly Phe Arg Leu Ala Leu Leu Ala
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Ala Met Thr Trp Gly Thr Leu Pro Xaa Ser Val Arg Gln Val Leu Lys
 20 25 30

Phe Val Asp Ala Pro Thr Leu Val Trp Val Arg Phe Thr Val Ala Ala
 35 40 45

Ala Val Leu Phe Val Leu Leu Ala Leu Gly Gly Arg Leu Pro Lys Arg
 50 55 60

Arg Asp Phe Ser Trp Cys Ser Phe Arg Leu Leu Leu Leu Gly Val Ala
 65 70 75 80

Gly Ile Ser Ala Asn Phe Val Leu Ile Ala Gln Gly Leu His Tyr Ile
 85 90 95

Ser Pro Thr Thr Thr Gln Val Leu Trp Gln Ile Ser Pro Phe Thr Met
 100 105 110

Ile Val Val Gly Val Leu Val Phe Lys Asp Arg Met Thr Ala Ala Gln
 115 120 125

Lys Ile Gly Leu Val Leu Leu Leu Ala Gly Leu Leu Met Tyr Phe Asn
 130 135 140

Asp Lys Phe Gly Glu Leu Ser Gly Leu Gly Ala Tyr Xaa Lys Gly Val
 145 150 155 160

Leu Leu Cys Ala Ala Gly Ser Met Ala Trp Val Cys Asn Ala Val Ala
 165 170 175

Gln Lys Leu Leu Ser Ala Gln Phe Gly Pro Gln Gln Ile Leu Leu Leu
 180 185 190

Ile Tyr Ala Ala Ser Ala Ala Val Phe Leu Pro Phe Ala Glu Pro Ala
195 200 205

His Ile Gly Ser Met Asp Gly Thr Leu Ala Trp Val Cys Ile Ala Tyr
210 215 220

Cys Cys Leu Asn Thr Leu Ile Gly Tyr Gly Ser Phe Gly Glu Ala Leu
225 230 235 240

Lys His Trp Glu Ala Ser Lys Val Ser Ala Val Thr Thr Leu Leu Pro
245 250 255

Val Phe Thr Val Ile Asn Thr Leu Leu Gly His Tyr Val Met Pro Glu
260 265 270

Thr Phe Ala Ala Pro
275

<210> 401
<211> 833
<212> DNA
<213> Neisseria meningitidis

<400> 401
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tgggtgcgtt ttaccgtggc ggcggcggta ttgtttgttt tgctggcact gggcggggcg 180
ctgccgaagc ggcgggattt ttcttggtgc tcattcaggc tgctgctgct cggcgtggcg 240
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acgcaggttt tgtggcagat ttccgcgttt acgatgattg ttgtcgggtg gttggtgttt 360
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ttcctgcggt ttgcogaacc ggcacacatc ggaagtttgg acggtacgtt ggcgtgggtt 660
tgctttgcgt attgctgctt gaatacgtta atcggttacg gctcgttcgg cgaggcgttg 720
aaacattggg aggcttccaa agtcagcgcg gtaacaacct tgctccccgt gtttaccgta 780
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<210> 402
<211> 277
<212> PRT
<213> Neisseria meningitidis

<220>
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Phe	Val	Asp	Ala	Pro	Thr	Leu	Val	Trp	Val	Arg	Phe	Thr	Val	Ala	Ala	
35					40					45						
Ala	Val	Leu	Phe	Val	Leu	Leu	Ala	Leu	Gly	Gly	Arg	Leu	Pro	Lys	Arg	
50					55					60						
Arg	Asp	Phe	Ser	Trp	Cys	Ser	Phe	Arg	Leu	Leu	Leu	Gly	Val	Ala		
65					70					75					80	
Gly	Ile	Ser	Ala	Asn	Phe	Val	Leu	Ile	Ala	Gln	Gly	Leu	His	Tyr	Ile	
85					90					95						
Ser	Pro	Thr	Thr	Thr	Gln	Val	Leu	Trp	Gln	Ile	Ser	Pro	Phe	Thr	Met	
100					105					110						
Ile	Val	Val	Gly	Val	Leu	Val	Phe	Lys	Asp	Arg	Met	Thr	Ala	Ala	Gln	
115					120					125						
Lys	Ile	Gly	Leu	Val	Leu	Leu	Leu	Ala	Gly	Leu	Leu	Met	Phe	Phe	Asn	
130					135					140						
Asp	Lys	Phe	Gly	Glu	Leu	Ser	Gly	Leu	Gly	Ala	Tyr	Ala	Lys	Gly	Val	
145					150					155					160	
Leu	Leu	Cys	Ala	Ala	Gly	Ser	Met	Ala	Trp	Val	Cys	Tyr	Ala	Val	Ala	
165					170					175						
Gln	Lys	Leu	Leu	Ser	Ala	Gln	Phe	Gly	Pro	Gln	Gln	Ile	Leu	Leu	Leu	
180					185					190						
Ile	Tyr	Ala	Ala	Ser	Ala	Ala	Val	Phe	Leu	Pro	Phe	Ala	Glu	Pro	Ala	
195					200					205						
His	Ile	Gly	Ser	Leu	Asp	Gly	Thr	Leu	Ala	Trp	Val	Cys	Phe	Ala	Tyr	
210					215					220						
Cys	Cys	Leu	Asn	Thr	Leu	Ile	Gly	Tyr	Gly	Ser	Phe	Gly	Glu	Ala	Leu	
225					230					235					240	
Lys	His	Trp	Glu	Ala	Ser	Lys	Val	Ser	Ala	Val	Thr	Thr	Leu	Leu	Pro	
245					250					255						
Val	Phe	Thr	Val	Ile	Xaa	Xaa	Leu	Leu	Gly	His	Tyr	Val	Met	Pro	Glu	
260					265					270						
Thr	Phe	Ala	Ala	Pro												
275																

<210> 403
 <211> 924
 <212> DNA
 <213> Neisseria meningitidis

 <400> 403

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tgggtgcgtt	ttaccgtggc	ggcggcggta	ttgtttgttt	tgctggcatt	gggcggggcg	180
ctgccgaagt	ggcgggattt	ttcttgggtc	tcattcaggc	tgctgctgct	cggcgtggcg	240
ggcatttcgg	caaaactttgt	gctgattgcc	caagggctgc	attatatattc	gccgaccacg	300
acgcaggttt	tgtggcagat	ttcgccgttt	acgatgattg	ttgtcgggtg	gttgggtgtt	360
aaagaccgga	tgactgccgc	tcagaaaatc	ggcttgggtt	tgctgcttgc	cggtttgctt	420
atgtttttta	acgataaatt	cggcgagttg	tcgggttttg	gcgcgtatgc	gaagggcggtg	480
ttgctgtgtg	cggcaggcag	tatggcatgg	gtgtgttatg	ccgtggcgca	aaagctgctg	540
tcggcgcaat	tcgggcccgc	acagattctg	ctgttgattt	atgcggcaag	tgccgccgtg	600
ttcctgccgt	ttgccgaact	ggcacacatc	ggaagtttgg	acggtacgtt	ggcgtgggtt	660
tgttttgcgt	attgctgctt	gaatacgtta	atcggttacg	gctcgttcgg	cgaggcggtg	720
aaacattggg	aggtttccaa	agtcagcgcg	gtaacaacct	tgctccccgt	gtttaccgta	780
atattttctt	tgctcgggca	ttatgtgatg	cctgatactt	ttgccgcgcc	ggatatgaac	840
ggtttggtt	atgccggcgc	actggctcgtg	gtcgggggtg	cggttacggc	ggcgggtggg	900
gacaggctgt	tcaaacgccg	ctag				924

<210> 404

<211> 307

<212> PRT

<213> Neisseria meningitidis

<400> 404

Met	Glu	Asn	Gln	Arg	Pro	Leu	Leu	Gly	Phe	Ala	Leu	Ala	Leu	Leu	Ala
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Ala	Met	Thr	Trp	Gly	Thr	Leu	Pro	Ile	Ala	Val	Arg	Gln	Val	Leu	Lys
			20					25					30		

Phe	Val	Asp	Ala	Pro	Thr	Leu	Val	Trp	Val	Arg	Phe	Thr	Val	Ala	Ala
		35					40					45			

Ala	Val	Leu	Phe	Val	Leu	Leu	Ala	Leu	Gly	Gly	Arg	Leu	Pro	Lys	Trp
	50					55					60				

Arg	Asp	Phe	Ser	Trp	Cys	Ser	Phe	Arg	Leu	Leu	Leu	Leu	Gly	Val	Ala
65					70					75				80	

Gly	Ile	Ser	Ala	Asn	Phe	Val	Leu	Ile	Ala	Gln	Gly	Leu	His	Tyr	Ile
				85					90					95	

Ser	Pro	Thr	Thr	Thr	Gln	Val	Leu	Trp	Gln	Ile	Ser	Pro	Phe	Thr	Met
			100					105					110		

Ile	Val	Val	Gly	Val	Leu	Val	Phe	Lys	Asp	Arg	Met	Thr	Ala	Ala	Gln
		115					120					125			

Lys	Ile	Gly	Leu	Val	Leu	Leu	Leu	Ala	Gly	Leu	Leu	Met	Phe	Phe	Asn
	130					135					140				

Asp	Lys	Phe	Gly	Glu	Leu	Ser	Gly	Leu	Gly	Ala	Tyr	Ala	Lys	Gly	Val
145					150					155					160

Leu	Leu	Cys	Ala	Ala	Gly	Ser	Met	Ala	Trp	Val	Cys	Tyr	Ala	Val	Ala
				165					170					175	

Gln Lys Leu Leu Ser Ala Gln Phe Gly Pro Gln Gln Ile Leu Leu Leu
 180 185 190
 Ile Tyr Ala Ala Ser Ala Ala Val Phe Leu Pro Phe Ala Glu Leu Ala
 195 200 205
 His Ile Gly Ser Leu Asp Gly Thr Leu Ala Trp Val Cys Phe Ala Tyr
 210 215 220
 Cys Cys Leu Asn Thr Leu Ile Gly Tyr Gly Ser Phe Gly Glu Ala Leu
 225 230 235 240
 Lys His Trp Glu Ala Ser Lys Val Ser Ala Val Thr Thr Leu Leu Pro
 245 250 255
 Val Phe Thr Val Ile Phe Ser Leu Leu Gly His Tyr Val Met Pro Asp
 260 265 270
 Thr Phe Ala Ala Pro Asp Met Asn Gly Leu Gly Tyr Ala Gly Ala Leu
 275 280 285
 Val Val Val Gly Gly Ala Val Thr Ala Ala Val Gly Asp Arg Leu Phe
 290 295 300
 Lys Arg Arg
 305

<210> 405
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 405
 nnnnnnnn

8

<210> 406
 <211> 307
 <212> PRT
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (204)..(204)
 <223> Xaa= any amino acid

<400> 406
 Met Glu Asn Gln Arg Pro Leu Leu Gly Phe Ala Leu Ala Leu Leu Ala
 1 5 10 15

Ala Met Thr Trp Gly Thr Leu Pro Ile Ala Val Arg Gln Val Leu Lys

20					25					30						
Phe	Val	Asp	Ala	Pro	Thr	Leu	Val	Trp	Val	Arg	Phe	Thr	Val	Ala	Ala	
35					40					45						
Ala	Val	Leu	Phe	Val	Leu	Leu	Ala	Leu	Gly	Gly	Arg	Leu	Pro	Lys	Arg	
50					55					60						
Arg	Asp	Phe	Ser	Trp	His	Ser	Phe	Arg	Leu	Leu	Leu	Leu	Gly	Val	Thr	
65					70					75					80	
Gly	Ile	Ser	Ala	Asn	Phe	Val	Leu	Ile	Ala	Gln	Gly	Leu	His	Tyr	Ile	
85					90					95						
Ser	Pro	Thr	Thr	Thr	Gln	Val	Leu	Trp	Gln	Ile	Ser	Pro	Phe	Thr	Met	
100					105					110						
Ile	Val	Val	Gly	Val	Leu	Val	Phe	Lys	Asp	Arg	Met	Thr	Ala	Ala	Gln	
115					120					125						
Lys	Ile	Gly	Leu	Val	Leu	Leu	Leu	Val	Gly	Leu	Leu	Met	Phe	Phe	Asn	
130					135					140						
Asp	Lys	Phe	Gly	Glu	Leu	Ser	Gly	Leu	Gly	Ala	Tyr	Ala	Lys	Gly	Val	
145					150					155					160	
Leu	Leu	Cys	Ala	Ala	Gly	Ser	Met	Ala	Trp	Val	Cys	Tyr	Ala	Val	Ala	
165					170					175						
Gln	Lys	Leu	Leu	Ser	Ala	Gln	Phe	Gly	Pro	Gln	Gln	Ile	Leu	Leu	Leu	
180					185					190						
Ile	Tyr	Ala	Ala	Ser	Ala	Ala	Val	Phe	Leu	Leu	Xaa	Ala	Glu	Pro	Ala	
195					200					205						
His	Ile	Gly	Ser	Leu	Asp	Gly	Thr	Leu	Ala	Trp	Val	Cys	Phe	Val	Tyr	
210					215					220						
Cys	Cys	Leu	Asn	Thr	Leu	Ile	Gly	Tyr	Gly	Ser	Phe	Gly	Glu	Ala	Leu	
225					230					235					240	
Lys	His	Trp	Glu	Ala	Ser	Lys	Val	Ser	Ala	Val	Thr	Thr	Leu	Leu	Pro	
245					250					255						
Val	Phe	Thr	Val	Ile	Phe	Ser	Leu	Leu	Gly	His	Tyr	Val	Met	Pro	Asp	
260					265					270						
Thr	Phe	Ala	Ala	Pro	Asp	Met	Asn	Gly	Leu	Gly	Tyr	Val	Gly	Ala	Leu	
275					280					285						
Val	Val	Val	Gly	Gly	Ala	Val	Thr	Ala	Ala	Val	Gly	Asp	Arg	Pro	Phe	
290					295					300						
Lys	Arg	Arg														
305																

<210> 407
 <211> 924
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 407
 atggaaaacc aaaggccgct cctaggcttc gcgttggcac ttttggcggc gatgacgtgg 60
 gggacgctgc cgattgccgt gcggcaggta ttgaagtttg tcgatgcgcc gacgctggtg 120
 tgggtgcgtt ttaccgtggc ggccggcggtta ttgtttgttt tgctggcatt gggcgggcgg 180
 ctgccgaagc ggccgggattt ttcttggcat tcattcaggc tgctgctgct cggcgtgacg 240
 ggcatttcgg caaactttgt gctgattgcc caagggtgc attatatctt gccgaccacg 300
 acgcagggtt tgtggcagat ttccgcgttt acgatgattg ttgtcggcgt gttggtgttt 360
 aaagaccgga tgactgccgc gcagaaaatc gggtttggtt tgctgcttgt cgggttgctt 420
 atgtttttta acgacaaatt cggcgagttg tcgggttttg gcgcgtatgc gaagggcgtg 480
 ttgctgtgtg cggcaggcag tatggcctgg gtgtgttatg ccgtggcgca aaagctgctg 540
 tcggcgcaat tcgggccgca acagattctg ctgttgattt atgcggcaag tgccgccgtg 600
 ttcttgccgt ttgccgaacc ggcacacatc ggaagtttgg acggtacgtt ggcgtgggtt 660
 tgttttgtgt attgtgctt gaatacgtta atcggttacg gctcgttcgg cgaggcgtt 720
 aaacattggg aggtctccaa agtcagcgcg gtaacaacct tgctccccgt gtttaccgta 780
 atattttctt tgctcgggca ttatgtgatg cctgatactt ttgccgcgcc ggatatgaac 840
 ggtttgggtt atgtcggcgc actggtcgtg gtcgggggtg cggttacggc ggcgggtggg 900
 gacaggccgt tcaaacgccg ctag 924

<210> 408
 <211> 307
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 408

Met	Glu	Asn	Gln	Arg	Pro	Leu	Leu	Gly	Phe	Ala	Leu	Ala	Leu	Leu	Ala
1				5					10					15	
Ala	Met	Thr	Trp	Gly	Thr	Leu	Pro	Ile	Ala	Val	Arg	Gln	Val	Leu	Lys
			20					25				30			
Phe	Val	Asp	Ala	Pro	Thr	Leu	Val	Trp	Val	Arg	Phe	Thr	Val	Ala	Ala
		35					40					45			
Ala	Val	Leu	Phe	Val	Leu	Leu	Ala	Leu	Gly	Gly	Arg	Leu	Pro	Lys	Arg
	50					55					60				
Arg	Asp	Phe	Ser	Trp	His	Ser	Phe	Arg	Leu	Leu	Leu	Leu	Gly	Val	Thr
65					70				75					80	
Gly	Ile	Ser	Ala	Asn	Phe	Val	Leu	Ile	Ala	Gln	Gly	Leu	His	Tyr	Ile
			85						90					95	
Ser	Pro	Thr	Thr	Thr	Gln	Val	Leu	Trp	Gln	Ile	Ser	Pro	Phe	Thr	Met
			100					105					110		
Ile	Val	Val	Gly	Val	Leu	Val	Phe	Lys	Asp	Arg	Met	Thr	Ala	Ala	Gln
		115					120					125			
Lys	Ile	Gly	Leu	Val	Leu	Leu	Leu	Val	Gly	Leu	Leu	Met	Phe	Phe	Asn
130						135					140				

Asp Lys Phe Gly Glu Leu Ser Gly Leu Gly Ala Tyr Ala Lys Gly Val
145 150 155 160

Leu Leu Cys Ala Ala Gly Ser Met Ala Trp Val Cys Tyr Ala Val Ala
165 170 175

Gln Lys Leu Leu Ser Ala Gln Phe Gly Pro Gln Gln Ile Leu Leu Leu
180 185 190

Ile Tyr Ala Ala Ser Ala Ala Val Phe Leu Pro Phe Ala Glu Pro Ala
195 200 205

His Ile Gly Ser Leu Asp Gly Thr Leu Ala Trp Val Cys Phe Val Tyr
210 215 220

Cys Cys Leu Asn Thr Leu Ile Gly Tyr Gly Ser Phe Gly Glu Ala Leu
225 230 235 240

Lys His Trp Glu Ala Ser Lys Val Ser Ala Val Thr Thr Leu Leu Pro
245 250 255

Val Phe Thr Val Ile Phe Ser Leu Leu Gly His Tyr Val Met Pro Asp
260 265 270

Thr Phe Ala Ala Pro Asp Met Asn Gly Leu Gly Tyr Val Gly Ala Leu
275 280 285

Val Val Val Gly Gly Ala Val Thr Ala Ala Val Gly Asp Arg Pro Phe
290 295 300

Lys Arg Arg
305

<210> 409
<211> 933
<212> DNA
<213> Neisseria meningitidis

<400> 409
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aatttcaaac cctcgggttc aatgccgagg ggttttgttt tgctgtttc ctgtttcctg 120
tttctgccc cctccgtttt ttgccggatt ttccttcogg ccgcaatata ggaacggcag 180
accgccgtct gtttgcggtt gcaaattcag gcagtttggc tacaatcttc cgcattgtct 240
tcaagaaagc caaccatgcc gaccgtccgt ttaccgaat ccgtcagcaa acaagacctt 300
gatgctctgt tcgagtgggc aaaagcaagt tacggtgcag aaagttgctg gaaaacgctg 360
tatctgaacg gtcysccttt gggcaacctg tcgccggaat ggggtggaacg cgtsmmaaaa 420
gactgggagg caggctgcyc ggagtccttca gacggcattt ttctgaatgc ggacggctgg 480
cctgatatgg gcggaacgctt acagcacctc gccctcgggt ggcaactgtgc ggggctgttg 540
gacggstggc gcaacgagtg ttctgacctg accgacggcg gcggcaaccc cttgttcacg 600
ctcgaacgcg ccgytttmcg tcctktcgga ctgctcagcc gcgccgtcca tctcaacggg 660
ctgaccgaat cggacggccg atggcatttc tggataggca ggcgagctcc gcacaaagca 720
gtcgatccca acaaactcga caatactgcc gccggcggtg tttccggcgg cgaaatgccg 780
tctgaagccg tgtgtcgca aagcagcgaa gaagccgggt tggataaac gctgcttccg 840
ctcatccgcc cggtatcgca gctgcacagc ctgctcctcc tcagccggggg tgtacacaat 900
gaaatcctgt atgtattcga tgccgtcctg ccg 933

<210> 410
<211> 312
<212> PRT
<213> Neisseria meningitidis

<220>
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<222> (17)..(17)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (21)..(21)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (31)..(31)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (34)..(34)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (126)..(126)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (140)..(140)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (148)..(148)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (206)..(207)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (210)..(210)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (251)..(251)
<223> Xaa= any amino acid

<400> 410

Met Val Ala Arg Arg Ala His Asn Pro Lys Val Val Gly Ser Asn Pro
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Xaa Pro Ala Thr Xaa Phe Gln Thr Pro Arg Phe Asn Ala Glu Xaa Val
20 25 30

Leu Xaa Leu Pro Val Ser Cys Phe Leu Phe Pro Ala Ala Ser Val Phe
35 40 45

Cys Arg Ile Phe Leu Pro Ala Ala Ile Ser Glu Arg Gln Thr Ala Val
50 55 60

Cys Leu Arg Leu Gln Ile Gln Ala Val Trp Leu Gln Ser Ser Ala Leu
65 70 75 80

Ser Ser Arg Lys Pro Thr Met Pro Thr Val Arg Phe Thr Glu Ser Val
85 90 95

Ser Lys Gln Asp Leu Asp Ala Leu Phe Glu Trp Ala Lys Ala Ser Tyr
100 105 110

Gly Ala Glu Ser Cys Trp Lys Thr Leu Tyr Leu Asn Gly Xaa Pro Leu
115 120 125

Gly Asn Leu Ser Pro Glu Trp Val Glu Arg Val Xaa Lys Asp Trp Glu
130 135 140

Ala Gly Cys Xaa Glu Ser Ser Asp Gly Ile Phe Leu Asn Ala Asp Gly
145 150 155 160

Trp Pro Asp Met Gly Gly Arg Leu Gln His Leu Ala Leu Gly Trp His
165 170 175

Cys Ala Gly Leu Leu Asp Gly Trp Arg Asn Glu Cys Phe Asp Leu Thr
180 185 190

Asp Gly Gly Gly Asn Pro Leu Phe Thr Leu Glu Arg Ala Xaa Xaa Arg
195 200 205

Pro Xaa Gly Leu Leu Ser Arg Ala Val His Leu Asn Gly Leu Thr Glu
210 215 220

Ser Asp Gly Arg Trp His Phe Trp Ile Gly Arg Arg Ser Pro His Lys
225 230 235 240

Ala Val Asp Pro Asn Lys Leu Asp Asn Thr Xaa Ala Gly Gly Val Ser
245 250 255

Gly Gly Glu Met Pro Ser Glu Ala Val Cys Arg Glu Ser Ser Glu Glu
260 265 270

Ala Gly Leu Asp Lys Thr Leu Leu Pro Leu Ile Arg Pro Val Ser Gln
275 280 285

Leu His Ser Leu Arg Ser Val Ser Arg Gly Val His Asn Glu Ile Leu
 290 295 300

Tyr Val Phe Asp Ala Val Leu Pro
 305 310

<210> 411
 <211> 876
 <212> DNA
 <213> Neisseria meningitidis

<400> 411
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 tgggcaaaag caagttacgg tgcagaaagt tgctggaaaa cgctgtatct gaacgggtctg 120
 cctttgggca acctgtcgcc ggaatgggtg gaacgcgtca aaaaagactg ggaggcaggc 180
 tgctcggagt cttcagacgg catttttctg aatgcggacg gctggcctga tatgggcgga 240
 cgcttacagc acctcgccct cggttggcac tgtgcggggc tgttggacgg ctggcgcaac 300
 gagtgtttcg acctgaccga cggcgggcggc aaccccttgt tcacgctcga acgcgcgct 360
 ttccgtcctt tcggactgct cagccgcgcc gtccatctca acggtctgac cgaatcggac 420
 ggccgatggc atttctggat aggcaggcgc agtccgcaca aagcagtcga tcccaacaaa 480
 ctcgacaata ctgccgccgg cgggtgtttcc ggcggcgaaa tgccgtctga agccgtgtgt 540
 cgcgaaagca gcgaagaagc cggtttggat aaaacgctgc ttccgctcat ccgcccggta 600
 tcgcagctgc acagcctgcg ctccgtcagc cgggggtgtac acaatgaaat cctgtatgta 660
 ttcatgcccg tcttgcgccg aaccttcctg cctgaaaatc aggatggcga agtggcgggt 720
 tttgagaaaa tggacatcgg cggctctgtt gatgccatgt tgcggggaaa catgatgcac 780
 gacgcgcaac tggttacgct ggacgcgttt tgccgttacg gtctgattga tgccgccccat 840
 ccgctgtccg agtggctgga cggcatacgt ttatag 876

<210> 412
 <211> 291
 <212> PRT
 <213> Neisseria meningitidis

<400> 412
 Met Pro Thr Val Arg Phe Thr Glu Ser Val Ser Lys Gln Asp Leu Asp
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 Ala Leu Phe Glu Trp Ala Lys Ala Ser Tyr Gly Ala Glu Ser Cys Trp
 20 25 30
 Lys Thr Leu Tyr Leu Asn Gly Leu Pro Leu Gly Asn Leu Ser Pro Glu
 35 40 45
 Trp Val Glu Arg Val Lys Lys Asp Trp Glu Ala Gly Cys Ser Glu Ser
 50 55 60
 Ser Asp Gly Ile Phe Leu Asn Ala Asp Gly Trp Pro Asp Met Gly Gly
 65 70 75 80
 Arg Leu Gln His Leu Ala Leu Gly Trp His Cys Ala Gly Leu Leu Asp
 85 90 95
 Gly Trp Arg Asn Glu Cys Phe Asp Leu Thr Asp Gly Gly Gly Asn Pro
 100 105 110

Leu Phe Thr Leu Glu Arg Ala Ala Phe Arg Pro Phe Gly Leu Leu Ser
 115 120 125
 Arg Ala Val His Leu Asn Gly Leu Thr Glu Ser Asp Gly Arg Trp His
 130 135 140
 Phe Trp Ile Gly Arg Arg Ser Pro His Lys Ala Val Asp Pro Asn Lys
 145 150 155 160
 Leu Asp Asn Thr Ala Ala Gly Gly Val Ser Gly Gly Glu Met Pro Ser
 165 170 175
 Glu Ala Val Cys Arg Glu Ser Ser Glu Glu Ala Gly Leu Asp Lys Thr
 180 185 190
 Leu Leu Pro Leu Ile Arg Pro Val Ser Gln Leu His Ser Leu Arg Ser
 195 200 205
 Val Ser Arg Gly Val His Asn Glu Ile Leu Tyr Val Phe Asp Ala Val
 210 215 220
 Leu Pro Glu Thr Phe Leu Pro Glu Asn Gln Asp Gly Glu Val Ala Gly
 225 230 235 240
 Phe Glu Lys Met Asp Ile Gly Gly Leu Leu Asp Ala Met Leu Ser Gly
 245 250 255
 Asn Met Met His Asp Ala Gln Leu Val Thr Leu Asp Ala Phe Cys Arg
 260 265 270
 Tyr Gly Leu Ile Asp Ala Ala His Pro Leu Ser Glu Trp Leu Asp Gly
 275 280 285
 Ile Arg Leu

290

<210> 413
 <211> 876
 <212> DNA
 <213> Neisseria meningitidis

<400> 413
 atgccgaccg tccgtttttac cgaatccgtc agcaaacacg accttgatgc cctattcgag 60
 tgggcaaagg caagttacgg tgcggaaagt tgctggaaaa cgctgtatct gaacgggtctg 120
 cctttgggca atctgtcgcc ggaatgggag gagcgcgatc aaaaagactg ggaggcaggc 180
 tgctcggagt cttcagacgg cattttcctg aatgcggacg gctggccaga tatgggcaga 240
 cgcttgacgc acctcgcccg aatatggaaa gaagcgggac tgcttcacgg ctggcgcgac 300
 gagtggtttc acctgaccca cggcggcagc aatcccttgt tcgcgctcga acgcgccgct 360
 ttccgtccgt tcggactgct cagccgcgcc gtccatctca acggtttggt cgaatcggac 420
 ggccgatggc atttctggat aggcaggcgc agtccgcaca aagcagtcga tcccgcacaaa 480
 ctgcacaata ctgcgcgcgg cgggtgtttcc agcgggtgaat tgccgtctga aaccgtgtgt 540
 cgcgaaagca gcgaagaagc cgggtttggat aaaacgctgc ttccgctcat ccgcccggta 600
 tcgcagctgc acagcctgcg ccccgctcagc cggggtgtgc acaatgaaat cctgtatgta 660
 ttgatgccc tccgtgccga aaccttctcg cctgaaaatc aggatggcga agtggcgggt 720
 tttgagaaaa tggacatcgg cgggtctgtt gctgccatgt tgctcgggaaa catgatgcac 780

gacgcgcaac tggttacgct ggacgcgttt tgccggttacg gtctgattga tgccgccccat
ccgctgtccg agtggctgga cggcatacgt ttatag

840
876

<210> 414
<211> 291
<212> PRT
<213> Neisseria meningitidis

<400> 414
Met Pro Thr Val Arg Phe Thr Glu Ser Val Ser Lys His Asp Leu Asp
1 5 10 15
Ala Leu Phe Glu Trp Ala Lys Ala Ser Tyr Gly Ala Glu Ser Cys Trp
20 25 30
Lys Thr Leu Tyr Leu Asn Gly Leu Pro Leu Gly Asn Leu Ser Pro Glu
35 40 45
Trp Ala Glu Arg Val Lys Lys Asp Trp Glu Ala Gly Cys Ser Glu Ser
50 55 60
Ser Asp Gly Ile Phe Leu Asn Ala Asp Gly Trp Pro Asp Met Gly Arg
65 70 75 80
Arg Leu Gln His Leu Ala Arg Ile Trp Lys Glu Ala Gly Leu Leu His
85 90 95
Gly Trp Arg Asp Glu Cys Phe Asp Leu Thr Asp Gly Gly Ser Asn Pro
100 105 110
Leu Phe Ala Leu Glu Arg Ala Ala Phe Arg Pro Phe Gly Leu Leu Ser
115 120 125
Arg Ala Val His Leu Asn Gly Leu Val Glu Ser Asp Gly Arg Trp His
130 135 140
Phe Trp Ile Gly Arg Arg Ser Pro His Lys Ala Val Asp Pro Asp Lys
145 150 155 160
Leu Asp Asn Thr Ala Ala Gly Gly Val Ser Ser Gly Glu Leu Pro Ser
165 170 175
Glu Thr Val Cys Arg Glu Ser Ser Glu Glu Ala Gly Leu Asp Lys Thr
180 185 190
Leu Leu Pro Leu Ile Arg Pro Val Ser Gln Leu His Ser Leu Arg Pro
195 200 205
Val Ser Arg Gly Val His Asn Glu Ile Leu Tyr Val Phe Asp Ala Val
210 215 220
Leu Pro Glu Thr Phe Leu Pro Glu Asn Gln Asp Gly Glu Val Ala Gly
225 230 235 240
Phe Glu Lys Met Asp Ile Gly Gly Leu Leu Ala Ala Met Leu Ser Gly
245 250 255

Asn Met Met His Asp Ala Gln Leu Val Thr Leu Asp Ala Phe Cys Arg
 260 265 270

Tyr Gly Leu Ile Asp Ala Ala His Pro Leu Ser Glu Trp Leu Asp Gly
 275 280 285

Ile Arg Leu
 290

<210> 415
 <211> 8
 <212> DNA
 <213> Neillia sinensis

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 415
 nnnnnnnn

8

<210> 416
 <211> 372
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 416
 Met Val Ala Arg Arg Ala His Asn Pro Lys Val Val Gly Ser Asn Pro
 1 5 10 15

Ala Pro Ala Thr Lys Tyr Gln Thr Pro Arg Phe Asn Ala Glu Gly Val
 20 25 30

Leu Phe Phe Leu Phe Pro Ala Ala Ser Val Phe Cys Arg Ile Phe Leu

35 40 45

Pro Ala Ala Ile Ser Glu Arg Gln Ala Ala Val Cys Leu Arg Leu Gln
 50 55 60

Ile Gln Ala Val Trp Leu Gln Ser Ser Ala Leu Cys Ser Arg Lys Pro
 65 70 75 80

Ala Met Pro Thr Val Arg Phe Thr Glu Ser Val Ser Lys Gln Asp Leu
 85 90 95

Asp Ala Leu Phe Glu Arg Ala Lys Ala Ser Tyr Gly Ala Glu Ser Cys
 100 105 110

Trp Lys Thr Leu Tyr Leu Asn Arg Leu Pro Leu Gly Asn Leu Ser Pro
 115 120 125

Glu Trp Ala Glu Arg Ile Lys Lys Asp Trp Glu Ala Gly Cys Ser Glu
 130 135 140

Ser Ser Asn Gly Ile Phe Leu Asn Ala Asp Gly Trp Pro Asp Met Gly
 145 150 155 160
 Gly Arg Leu Gln His Leu Ala Arg Thr Trp Asn Lys Ala Gly Leu Leu
 165 170 175
 His Gly Trp Arg Asn Glu Cys Phe Asp Leu Thr Asp Gly Gly Gly Asn
 180 185 190
 Pro Leu Phe Thr Leu Glu Arg Ala Ala Phe Arg Pro Phe Gly Leu Leu
 195 200 205
 Ile Arg Ala Val His Leu Asn Gly Leu Val Glu Ser Asn Gly Arg Trp
 210 215 220
 His Phe Trp Ile Gly Arg Arg Ser Pro His Lys Ala Val Asp Pro Gly
 225 230 235 240
 Lys Leu Asp Asn Ile Ala Gly Gly Gly Val Ser Gly Gly Glu Met Pro
 245 250 255
 Ser Glu Ala Val Cys Arg Glu Ser Ser Glu Glu Ala Gly Leu Asp Lys
 260 265 270
 Thr Leu Phe Pro Leu Ile Arg Pro Val Ser Arg Leu His Ser Leu Arg
 275 280 285
 Pro Val Ser Arg Gly Val His Asn Glu Ile Leu Tyr Val Phe Asp Ala
 290 295 300
 Val Leu Pro Glu Thr Phe Leu Pro Glu Asn Gln Asp Gly Glu Val Ala
 305 310 315 320
 Gly Phe Glu Lys Met Asp Ile Gly Gly Leu Leu Asp Ala Met Leu Ser
 325 330 335
 Lys Asn Met Met His Asp Ala Gln Leu Val Thr Leu Asp Ala Phe Tyr
 340 345 350
 Arg Tyr Gly Leu Ile Asp Ala Ala His Pro Leu Ser Glu Trp Leu Asp
 355 360 365
 Gly Ile Arg Leu
 370

<210> 417
 <211> 876
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 417
 atgccgaccg tccgtttttac cgaatccgtc agcaaacaag accttgatgc cctgttcgag 60
 cgggcaaaaag caagttacgg tgccgaaagt tgctggaaaa cgctgtatct gaaccgtctt 120
 cctttgggca atctgtcgcc ggaatgggct gagcgcatca aaaaagactg ggaggcaggc 180

tgctccgagt	cttcagacgg	catttttctg	aatgcggacg	gctggccgga	tatgggcgga	240
cgcttgacgc	acctcgcccg	cacatggaac	aaggcggggc	tgcttcacgg	atggcgcaac	300
gagtgtttcg	acctgaccga	cggcggcggc	aacccttgt	tcacgctcga	acgcgccgct	360
ttccgtccgt	tcggactact	cagccgcgcc	gtccatctca	acggtttggt	cgaatcgaac	420
ggcagatggc	atttttggat	aggcaggcgc	agtccgcaca	aagcagtcga	tcccggcaag	480
ctcgacaata	ttgccggcgg	cgggtgttcc	ggcggcgaaa	tgccgtctga	agccgtgtgc	540
cgcgaaagca	gcgaagaagc	cggtttggat	aaaacgctgt	ttccgctcat	ccgcccagta	600
tcgcggctgc	acagccttcg	ccccgtcagc	cgaggtgtgc	acaatgaaat	cctgtatgtg	660
ttcgatgccg	tcctgcccga	aaccttcctg	cctgaaaatc	aggatggcga	ggtagcgggt	720
tttgaaaaga	tggacattgg	cggcctattg	gatgccatgt	tgtcgaaaaa	catgatgcac	780
gacgcgcaac	tggttacgct	ggacgcgttt	taccgttacg	gtctgattga	tgccgcccat	840
ccgctgtccg	agtggctgga	cggcatacgt	ttatag			876

<210> 418
 <211> 291
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 418
 Met Pro Thr Val Arg Phe Thr Glu Ser Val Ser Lys Gln Asp Leu Asp
 1 5 10 15
 Ala Leu Phe Glu Arg Ala Lys Ala Ser Tyr Gly Ala Glu Ser Cys Trp
 20 25 30
 Lys Thr Leu Tyr Leu Asn Arg Leu Pro Leu Gly Asn Leu Ser Pro Glu
 35 40 45
 Trp Ala Glu Arg Ile Lys Lys Asp Trp Glu Ala Gly Cys Ser Glu Ser
 50 55 60
 Ser Asp Gly Ile Phe Leu Asn Ala Asp Gly Trp Pro Asp Met Gly Gly
 65 70 75 80
 Arg Leu Gln His Leu Ala Arg Thr Trp Asn Lys Ala Gly Leu Leu His
 85 90 95
 Gly Trp Arg Asn Glu Cys Phe Asp Leu Thr Asp Gly Gly Gly Asn Pro
 100 105 110
 Leu Phe Thr Leu Glu Arg Ala Ala Phe Arg Pro Phe Gly Leu Leu Ser
 115 120 125
 Arg Ala Val His Leu Asn Gly Leu Val Glu Ser Asn Gly Arg Trp His
 130 135 140
 Phe Trp Ile Gly Arg Arg Ser Pro His Lys Ala Val Asp Pro Gly Lys
 145 150 155 160
 Leu Asp Asn Ile Ala Gly Gly Gly Val Ser Gly Gly Glu Met Pro Ser
 165 170 175
 Glu Ala Val Cys Arg Glu Ser Ser Glu Glu Ala Gly Leu Asp Lys Thr
 180 185 190

Leu Phe Pro Leu Ile Arg Pro Val Ser Arg Leu His Ser Leu Arg Pro
 195 200 205
 Val Ser Arg Gly Val His Asn Glu Ile Leu Tyr Val Phe Asp Ala Val
 210 215 220
 Leu Pro Glu Thr Phe Leu Pro Glu Asn Gln Asp Gly Glu Val Ala Gly
 225 230 235 240
 Phe Glu Lys Met Asp Ile Gly Gly Leu Leu Asp Ala Met Leu Ser Lys
 245 250 255
 Asn Met Met His Asp Ala Gln Leu Val Thr Leu Asp Ala Phe Tyr Arg
 260 265 270
 Tyr Gly Leu Ile Asp Ala Ala His Pro Leu Ser Glu Trp Leu Asp Gly
 275 280 285
 Ile Arg Leu
 290

<210> 419
 <211> 566
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 419
 atgaatagac ccaagcaacc cttcttccgt cccgaagtcg ccgttgcccg ccaaaccagc 60
 ctgacgggta aagtgattct gacacgacgg ttgtcatttt ccctatggac gacatttgca 120
 tcgatatctg cgttattgat tctctgttt ttgatatttg gtaactatac gcgaaagaca 180
 acagtggagg gacaaatttt acctgcatcg ggcgtaatca ggggtgatgc accggatagc 240
 rgkacaatta cagcgaaatt cgtggaagat ggmsaaaagg ttaaggctgg cgacaagcta 300
 tttgcgcttt cgacctcacg tttcggcgca ggaggtagcg tgcagcagca gttgaaaacg 360
 gaggcagttt tgaagaaaac gttggcagaa caggaactgg gtcgtctgaa gctgatacac 420
 gggaatgaaa cgcgagcct taaagcaact gtcgaacggt tggaaaacca ggaactccat 480
 atttcgcaac agatagacgg tcagaaaagg cgcattagac ttgcggaaga aatgttgcag 540
 aaatatcggt tcctatccgc caatga 566

<210> 420
 <211> 188
 <212> PRT
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature
 <222> (81)..(81)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (92)..(92)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature

<222> (187)..(187)

<223> Xaa= any amino acid

<400> 420

Met Asn Arg Pro Lys Gln Pro Phe Phe Arg Pro Glu Val Ala Val Ala
1 5 10 15

Arg Gln Thr Ser Leu Thr Gly Lys Val Ile Leu Thr Arg Pro Leu Ser
20 25 30

Phe Ser Leu Trp Thr Thr Phe Ala Ser Ile Ser Ala Leu Leu Ile Ile
35 40 45

Leu Phe Leu Ile Phe Gly Asn Tyr Thr Arg Lys Thr Thr Val Glu Gly
50 55 60

Gln Ile Leu Pro Ala Ser Gly Val Ile Arg Val Tyr Ala Pro Asp Thr
65 70 75 80

Xaa Thr Ile Thr Ala Lys Phe Val Glu Asp Gly Xaa Lys Val Lys Ala
85 90 95

Gly Asp Lys Leu Phe Ala Leu Ser Thr Ser Arg Phe Gly Ala Gly Gly
100 105 110

Ser Val Gln Gln Gln Leu Lys Thr Glu Ala Val Leu Lys Lys Thr Leu
115 120 125

Ala Glu Gln Glu Leu Gly Arg Leu Lys Leu Ile His Gly Asn Glu Thr
130 135 140

Arg Ser Leu Lys Ala Thr Val Glu Arg Leu Glu Asn Gln Glu Leu His
145 150 155 160

Ile Ser Gln Gln Ile Asp Gly Gln Lys Arg Arg Ile Arg Leu Ala Glu
165 170 175

Glu Met Leu Gln Lys Tyr Arg Phe Leu Ser Xaa Gln
180 185

<210> 421

<211> 717

<212> DNA

<213> Neisseria meningitidis

<220>

<221> misc_feature

<222> (21)..(21)

<223> N= Unknown

<220>

<221> misc_feature

<222> (252)..(252)

<223> N= Unknown

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<220>
<221> misc_feature
<222> (262)..(262)
<223> N= Unknown

<220>
<221> misc_feature
<222> (695)..(696)
<223> N= Unknown

<400> 421
atgaatagac ccaagcaacc nttcttccgt cccgaagtcg ccgttgcccg ccaaaccagc 60
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tcgatatctg cgttattgat taccctgttt ttgatatttg gtaactatac gcgaaagaca 180
acagtggagg gacaaatttt acctgcacgg ggcgtaatca ggggtgatgc accggatacg 240
gggacaatta cngcgaaatt cntggaagat ggagaaaagg ttaaggctgg cgacaagcta 300
tttgcgcttt cgacctcacg tttcggcgca ggagatagcg tgcagcagca gttgaaaacg 360
gaggcagttt tgaagaaaac gttggcagaa caggaactgg gtcgtctgaa gctgatacac 420
gggaatgaaa cgcgacgctt taaagcaact gtcgaacggt tggaaaacca ggaactccat 480
atttcgcaac agatagacgg tcagaaaagg cgcattagac ttgcggaaga aatggttcag 540
aaatatcggt tcctatccgc caatgatgca gtgccaaaac aagaaatgat gaatgtcaag 600
gcagagcttt tagagcagaa agccaaactt gatgcctacc gccgagaaga agtcgggctg 660
cttcaggaaa tccgcacgca gaatctgaca ttggnnagcc tcccccaagc ggcatga 717

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<210> 422
<211> 238
<212> PRT
<213> Neisseria meningitidis

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<220>
<221> misc_feature
<222> (88)..(88)
<223> Xaa= any amino acid

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<220>
<221> misc_feature
<222> (232)..(232)
<223> Xaa= any amino acid

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<400> 422
Met Asn Arg Pro Lys Gln Pro Phe Phe Arg Pro Glu Val Ala Val Ala

```

```

1           5           10          15
Arg Gln Thr Ser Leu Thr Gly Lys Val Ile Leu Thr Arg Pro Leu Ser
20           25           30
Phe Ser Leu Trp Thr Thr Phe Ala Ser Ile Ser Ala Leu Leu Ile Ile
35           40           45
Leu Phe Leu Ile Phe Gly Asn Tyr Thr Arg Lys Thr Thr Val Glu Gly
50           55           60
Gln Ile Leu Pro Ala Ser Gly Val Ile Arg Val Tyr Ala Pro Asp Thr
65           70           75           80

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Gly Thr Ile Thr Ala Lys Phe Xaa Glu Asp Gly Glu Lys Val Lys Ala
 85 90 95
 Gly Asp Lys Leu Phe Ala Leu Ser Thr Ser Arg Phe Gly Ala Gly Asp
 100 105 110
 Ser Val Gln Gln Gln Leu Lys Thr Glu Ala Val Leu Lys Lys Thr Leu
 115 120 125
 Ala Glu Gln Glu Leu Gly Arg Leu Lys Leu Ile His Gly Asn Glu Thr
 130 135 140
 Arg Ser Leu Lys Ala Thr Val Glu Arg Leu Glu Asn Gln Glu Leu His
 145 150 155 160
 Ile Ser Gln Gln Ile Asp Gly Gln Lys Arg Arg Ile Arg Leu Ala Glu
 165 170 175
 Glu Met Leu Gln Lys Tyr Arg Phe Leu Ser Ala Asn Asp Ala Val Pro
 180 185 190
 Lys Gln Glu Met Met Asn Val Lys Ala Glu Leu Leu Glu Gln Lys Ala
 195 200 205
 Lys Leu Asp Ala Tyr Arg Arg Glu Glu Val Gly Leu Leu Gln Glu Ile
 210 215 220
 Arg Thr Gln Asn Leu Thr Leu Xaa Ser Leu Pro Gln Ala Ala
 225 230 235

<210> 423
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 423
 nnnnnnnn

8

<210> 424
 <211> 188
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 424
 Met Asn Arg Pro Lys Gln Pro Phe Phe Arg Pro Glu Val Ala Ile Ala
 1 5 10 15

Arg Gln Thr Ser Leu Thr Gly Lys Val Ile Leu Thr Arg Pro Leu Ser
 20 25 30

Phe Ser Leu Trp Thr Thr Phe Ala Ser Ile Ser Ala Leu Leu Ile Ile

35	40	45
Leu Phe Leu Ile Phe Gly Asn Tyr Thr Arg Lys Thr Thr Met Glu Gly		
50	55	60
Gln Ile Leu Pro Ala Ser Gly Val Ile Arg Val Tyr Ala Pro Asp Thr		
65	70	75 80
Gly Thr Ile Thr Ala Lys Phe Val Glu Asp Gly Glu Lys Val Lys Ala		
85	90	95
Gly Asp Lys Leu Phe Ala Leu Ser Thr Ser Arg Phe Gly Ala Gly Gly		
100	105	110
Ser Val Gln Gln Gln Leu Lys Thr Glu Ala Val Leu Lys Lys Thr Leu		
115	120	125
Ala Glu Gln Glu Leu Gly Arg Leu Lys Leu Ile His Glu Asn Glu Thr		
130	135	140
Arg Ser Leu Lys Ala Thr Val Glu Arg Leu Glu Asn Gln Lys Leu His		
145	150	155 160
Ile Ser Gln Gln Ile Asp Gly Gln Lys Arg Arg Ile Arg Leu Ala Glu		
165	170	175
Glu Met Leu Arg Lys Tyr Arg Phe Leu Ser Ala Gln		
180	185	

<210> 425
 <211> 545
 <212> DNA
 <213> Neisseria meningitidis

<400> 425	
atgctgaata ctttttttgc cgtattgggc ggctgcctgc tgctttgccg tgcggcaaat	60
ccgtaaatac ggcggtacag ccgcaaaacg cggtagaaag cgcgccgaaa ccggttttca	120
aagtcataata tatcgacaat acggcgattg ccggttttga tttgggacaa agcagcgaag	180
gcaaaaccaa cgacggcaaa aaacaaatca gttatccgat taaaggcttg ccggaacaaa	240
atgttatccg actgatcggc aagcatcccg gcgacttggg agccgtcagc ggcaaatgta	300
tggaaaccga tgataaggac agtccggcag gttgggcaga aaacggcgtg tgccatacct	360
tgtttgccaa actggtgggc aatatcgccg aagacggcgg caaactgacg gattacctag	420
tttcgcatgc cgccttgcaa ccctatcagg caggcaaaag cggctatgcc gccgtgcaga	480

acggacgcta tgtgctggaa atcgacagcg aaggggcgtt ttattttccgc cgccgccatt	540
attga	545

<210> 426
 <211> 181
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (15)..(15)
 <223> Xaa= any amino acid

<400> 426

Met Leu Asn Thr Phe Phe Ala Val Leu Gly Gly Cys Leu Leu Xaa Leu
1 5 10 15

Pro Cys Gly Lys Ser Val Asn Thr Ala Val Gln Pro Gln Asn Ala Val
20 25 30

Gln Ser Ala Pro Lys Pro Val Phe Lys Val Ile Tyr Ile Asp Asn Thr
35 40 45

Ala Ile Ala Gly Leu Asp Leu Gly Gln Ser Ser Glu Gly Lys Thr Asn
50 55 60

Asp Gly Lys Lys Gln Ile Ser Tyr Pro Ile Lys Gly Leu Pro Glu Gln
65 70 75 80

Asn Val Ile Arg Leu Ile Gly Lys His Pro Gly Asp Leu Glu Ala Val
85 90 95

Ser Gly Lys Cys Met Glu Thr Asp Asp Lys Asp Ser Pro Ala Gly Trp
100 105 110

Ala Glu Asn Gly Val Cys His Thr Leu Phe Ala Lys Leu Val Gly Asn
115 120 125

Ile Ala Glu Asp Gly Gly Lys Leu Thr Asp Tyr Leu Val Ser His Ala
130 135 140

Ala Leu Gln Pro Tyr Gln Ala Gly Lys Ser Gly Tyr Ala Ala Val Gln
145 150 155 160

Asn Gly Arg Tyr Val Leu Glu Ile Asp Ser Glu Gly Ala Phe Tyr Phe
165 170 175

Arg Arg Arg His Tyr
180

<210> 427

<211> 546

<212> DNA

<213> Neisseria meningitidis

<400> 427

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atgctgaaaa catcttttgc cgtattgggc ggctgcctgc tgcttgccgc ctgcggcaaa 60
tccgaaaata cggcggaaca gccgcaaac gcggtacaaa gcgcgccgaa accggttttc 120
aaagtcaaat atacgacaa tacggcgatt gccggtttgg atttgggaca aagcagcgaa 180
ggcaaaacca acgacggcaa aaaacaaatc agttatccga ttaaaggctt gccggaacaa 240
aatgttatcc gactgatcgg caagcatccc ggcgacttgg aagccgtcag cggcaaatgt 300
atggaaaccg atgataagga cagtccggca ggttgggcag aaaacggcgt gtgccatacc 360
ttgtttgcca aactggtggg caatatcgcc gaagacggcg gcaaactgac ggattaccta 420
gtttcgcatg ccgccctgca accctatcag gcaggcaaaa gcggctatgc cgccgtgcag 480
aacggacgct atgtgctgga aatcgacagc gaaggggcgt tttatttccg ccgccgccat 540
tattga 546
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<210> 428
 <211> 181
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 428
 Met Leu Lys Thr Ser Phe Ala Val Leu Gly Gly Cys Leu Leu Leu Ala
 1 5 10 15
 Ala Cys Gly Lys Ser Glu Asn Thr Ala Glu Gln Pro Gln Asn Ala Val
 20 25 30
 Gln Ser Ala Pro Lys Pro Val Phe Lys Val Lys Tyr Ile Asp Asn Thr
 35 40 45
 Ala Ile Ala Gly Leu Asp Leu Gly Gln Ser Ser Glu Gly Lys Thr Asn
 50 55 60
 Asp Gly Lys Lys Gln Ile Ser Tyr Pro Ile Lys Gly Leu Pro Glu Gln
 65 70 75 80
 Asn Val Ile Arg Leu Ile Gly Lys His Pro Gly Asp Leu Glu Ala Val
 85 90 95
 Ser Gly Lys Cys Met Glu Thr Asp Asp Lys Asp Ser Pro Ala Gly Trp
 100 105 110
 Ala Glu Asn Gly Val Cys His Thr Leu Phe Ala Lys Leu Val Gly Asn
 115 120 125
 Ile Ala Glu Asp Gly Gly Lys Leu Thr Asp Tyr Leu Val Ser His Ala
 130 135 140
 Ala Leu Gln Pro Tyr Gln Ala Gly Lys Ser Gly Tyr Ala Ala Val Gln
 145 150 155 160
 Asn Gly Arg Tyr Val Leu Glu Ile Asp Ser Glu Gly Ala Phe Tyr Phe
 165 170 175
 Arg Arg Arg His Tyr
 180

<210> 429
 <211> 546
 <212> DNA

<213> *Neisseria gonorrhoeae*

<400> 429
 atgctgaaaa taccttttgc cgtgttgggc ggctgcctgc tgcttgccgc ctgcggcaaa 60
 tccgaaaata cggcgggaaca gccgcaaat gccgcacaaa gcgcgcgaa accggttttc 120
 aaagtcaaat acatcgacaa tacggcgatt gccggtttgg ctttgggaca aagtagcgaa 180
 ggcaaaacca acgacggcaa aaaacaaatc agttatccga ttaaaggctt gccggaacaa 240
 aacgcgctcc ggctgaccgg aaagcatccc aacgacttgg aagccgtcgt cggcaaatgt 300
 atggaaaccg acggaaagga cgcgccttcg ggctgggcgg aaaacggcgt gtgccatacc 360
 ttgtttgcc aactggtggg caatatcgcc gaagacggcg gcaactgac tgattacctg 420

atttcgcatt ccgccctgca accctatcag gcaggcaaaa gcggctatgc cgccgtgcag 480
aacggacgct atgtgctgga aatcgacagc gagggggcgt tttatttccg ccgccgcat 540
tattga 546

<210> 430
<211> 181
<212> PRT
<213> Neisseria gonorrhoeae

<400> 430
Met Leu Lys Ile Pro Phe Ala Val Leu Gly Gly Cys Leu Leu Leu Ala
1 5 10 15
Ala Cys Gly Lys Ser Glu Asn Thr Ala Glu Gln Pro Gln Asn Ala Ala
20 25 30
Gln Ser Ala Pro Lys Pro Val Phe Lys Val Lys Tyr Ile Asp Asn Thr
35 40 45
Ala Ile Ala Gly Leu Ala Leu Gly Gln Ser Ser Glu Gly Lys Thr Asn
50 55 60
Asp Gly Lys Lys Gln Ile Ser Tyr Pro Ile Lys Gly Leu Pro Glu Gln
65 70 75 80
Asn Ala Val Arg Leu Thr Gly Lys His Pro Asn Asp Leu Glu Ala Val
85 90 95
Val Gly Lys Cys Met Glu Thr Asp Gly Lys Asp Ala Pro Ser Gly Trp
100 105 110
Ala Glu Asn Gly Val Cys His Thr Leu Phe Ala Lys Leu Val Gly Asn
115 120 125
Ile Ala Glu Asp Gly Gly Lys Leu Thr Asp Tyr Leu Ile Ser His Ser
130 135 140
Ala Leu Gln Pro Tyr Gln Ala Gly Lys Ser Gly Tyr Ala Ala Val Gln
145 150 155 160
Asn Gly Arg Tyr Val Leu Glu Ile Asp Ser Glu Gly Ala Phe Tyr Phe
165 170 175
Arg Arg Arg His Tyr
180

<210> 431
<211> 695
<212> DNA
<213> Neisseria meningitidis

<400> 431
atggaagatt tatatataat actcgctttg ggtttggttg cgatgattgc cggatttattc 60
gatgcgattg cgggcggggg tggtttgatt acgctgcccg cactcttggtt ggcagggtatt 120
cctcccgtgt cggcaattgc caccaacaag ctgcaagcag ccgctgctac gttttcagct 180

acggtttctt	ttgcacgcaa	aggtttgatt	gattggaaga	aaggtctccc	gattgcccga	240
gcatcgtttg	taggcggcgt	ggccgggtgca	ttatcggtca	gcttggtttc	caaagatatt	300
ctgctggcgg	tcgtgccggg	ttgttgata	ttgtgcgac	tgtattttgt	gttttcgccc	360
aagctcgacg	gcagtaagga	aggcaaagcc	agaatgtctt	ttttctgtt	cgggctgacg	420
gtcgcaccgc	ttttgggttt	ttacgacggg	gtgttcggac	cgggtgtcgg	ctcgtttttt	480
ctgattgcct	ttattgtttt	gctcggctgc	aagctgttga	acgcgatgtc	ttacacaaaa	540
ttggcgaacg	ttgcctgcaa	tcttggttcg	ctatcggtat	tcctgctgca	cggttcgatt	600
attttcccg	ttgcggcaac	gatggcgggc	ggtgcgtttg	tcggtgcgaa	tttaggtgcg	660
agatttgccg	tacgcttcgg	ttcgaagctg	attaa			695

<210> 432
 <211> 231
 <212> PRT
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature
 <222> (142)..(142)
 <223> Xaa= any amino acid

<400> 432
 Met Glu Asp Leu Tyr Ile Ile Leu Ala Leu Gly Leu Val Ala Met Ile
 1 5 10 15
 Ala Gly Phe Ile Asp Ala Ile Ala Gly Gly Gly Gly Leu Ile Thr Leu
 20 25 30
 Pro Ala Leu Leu Leu Ala Gly Ile Pro Pro Val Ser Ala Ile Ala Thr
 35 40 45
 Asn Lys Leu Gln Ala Ala Ala Ala Thr Phe Ser Ala Thr Val Ser Phe
 50 55 60
 Ala Arg Lys Gly Leu Ile Asp Trp Lys Lys Gly Leu Pro Ile Ala Ala
 65 70 75 80
 Ala Ser Phe Val Gly Gly Val Ala Gly Ala Leu Ser Val Ser Leu Val
 85 90 95
 Ser Lys Asp Ile Leu Leu Ala Val Val Pro Val Leu Leu Ile Phe Val
 100 105 110
 Ala Leu Tyr Phe Val Phe Ser Pro Lys Leu Asp Gly Ser Lys Glu Gly
 115 120 125
 Lys Ala Arg Met Ser Phe Phe Leu Phe Gly Leu Thr Val Xaa Thr Ala
 130 135 140
 Phe Gly Phe Leu Arg Arg Cys Val Arg Thr Gly Cys Arg Leu Val Phe
 145 150 155 160
 Ser Asp Cys Leu Tyr Cys Phe Ala Arg Leu Gln Ala Val Glu Arg Asp
 165 170 175
 Val Leu His Gln Ile Gly Glu Arg Cys Leu Gln Ser Trp Phe Ala Ile
 180 185 190

Gly Ile Pro Ala Ala Arg Phe Asp Tyr Phe Pro Asp Cys Gly Asn Asp
 195 200 205

Gly Gly Arg Cys Val Cys Arg Cys Glu Phe Arg Cys Glu Ile Cys Arg
 210 215 220

Thr Leu Arg Phe Glu Ala Asp
 225 230

<210> 433
 <211> 789
 <212> DNA
 <213> Neisseria meningitidis

<400> 433
 atggaagatt tatatataat actcgctttg ggtttggttg cgatgattgc cggatttatac 60
 gatgcgattg cgggcggggg tggtttgatt acgctgcccg cactcttggtt ggcagggtatt 120
 cctcccgtgt cggcaattgc caccaacaag ctgcaagcag ccgctgctac gttttcagct 180
 acggtttctt ttgcacgcaa aggtttgatt gattggaaga aaggctctccc gattgccgca 240
 gcatcgtttg taggcggcgt ggccgggtgca ttatcggtca gcttggtttc caaagatatt 300
 ctgctggcgg tegtgcgggt tttgttgata tttgtgcac tgtattttgt gttttcggcc 360
 aagctcgacg gcagtaagga aggcaaagcc agaattgtctt tttttctggtt cgggctgacg 420
 gtgcgaccgc ttttggtttt ttacgacggt gtgttcggac cgggtgtcgg ctcggtttttt 480
 ctgattgcct ttattgtttt gctcggtcgc aagctgttga acgcgatgtc ttacacaaaa 540
 ttggcgaacg ttgcctgcaa tcttggttcg ctatcggtat tcctgctgca cggttcgatt 600
 attttcccga ttgcggcaac gatggcggtc ggtgcgtttg tcggtgcgaa tttaggtgcg 660
 agatttgccg tccgcttcgg ttcgaagctg attaagccgc tgctgattgt catcagcatt 720
 tcgatggctg tgaaattggt gatagacgag agaaatccgc tgtatcagat gattgttttcg 780
 atgttttaa 789

<210> 434
 <211> 262
 <212> PRT
 <213> Neisseria meningitidis

<400> 434
 Met Glu Asp Leu Tyr Ile Ile Leu Ala Leu Gly Leu Val Ala Met Ile
 1 5 10 15
 Ala Gly Phe Ile Asp Ala Ile Ala Gly Gly Gly Gly Leu Ile Thr Leu
 20 25 30
 Pro Ala Leu Leu Leu Ala Gly Ile Pro Pro Val Ser Ala Ile Ala Thr
 35 40 45
 Asn Lys Leu Gln Ala Ala Ala Ala Thr Phe Ser Ala Thr Val Ser Phe
 50 55 60
 Ala Arg Lys Gly Leu Ile Asp Trp Lys Lys Gly Leu Pro Ile Ala Ala
 65 70 75 80
 Ala Ser Phe Val Gly Gly Val Ala Gly Ala Leu Ser Val Ser Leu Val
 85 90 95
 Ser Lys Asp Ile Leu Leu Ala Val Val Pro Val Leu Leu Ile Phe Val

100	105	110
Ala Leu Tyr Phe Val Phe Ser Pro Lys Leu Asp Gly Ser Lys Glu Gly		
115	120	125
Lys Ala Arg Met Ser Phe Phe Leu Phe Gly Leu Thr Val Ala Pro Leu		
130	135	140
Leu Gly Phe Tyr Asp Gly Val Phe Gly Pro Gly Val Gly Ser Phe Phe		
145	150	155
Leu Ile Ala Phe Ile Val Leu Leu Gly Cys Lys Leu Leu Asn Ala Met		
165	170	175
Ser Tyr Thr Lys Leu Ala Asn Val Ala Cys Asn Leu Gly Ser Leu Ser		
180	185	190
Val Phe Leu Leu His Gly Ser Ile Ile Phe Pro Ile Ala Ala Thr Met		
195	200	205
Ala Val Gly Ala Phe Val Gly Ala Asn Leu Gly Ala Arg Phe Ala Val		
210	215	220
Arg Phe Gly Ser Lys Leu Ile Lys Pro Leu Leu Ile Val Ile Ser Ile		
225	230	235
Ser Met Ala Val Lys Leu Leu Ile Asp Glu Arg Asn Pro Leu Tyr Gln		
245	250	255
Met Ile Val Ser Met Phe		
260		

<210> 435
 <211> 789
 <212> DNA
 <213> Neisseria meningitidis

<400> 435	
atggaagatt tatacataat actcgctttg gggttggttg cgatgattgc cggatttatac	60
gatgcgattg cgggtggggg tggtttgatt acgctgcctg cactcttggt ggcaggatt	120
cctcccggtg cggcaattgc caccaacaag ctgcaagcag ccgctgctac gttttcggct	180
acggtttctt ttgcacgcaa aggtttgatt gattggaaga aaggtctccc gattgaggca	240
gcatcggttg caggcggcgt ggtcggtgca ttatcggtca gcttggtttc caaagatatt	300
ctgctggcgg tcgtgccggt tttgttgata tttgtcgcgc tgtattttgt gttttcgccc	360
aagctcgacg gcagtaagga aggcaaagcc agaatgtctt ttttctggt cggctcgacg	420
gttgaccac ttttgggttt ttacgacggt gtgttcggac cgggtgtcgg ctcggttttt	480
ctgattgcct ttattgtttt gtcggctgc aagctgttga acgcgatgtc ttacacaaaa	540
ttggcgaacg ttgacctgaa tcttggttcg ctatcggtat tctgtctgca cggttcgatt	600
attttccga ttgcggcaac gatggcggtc ggtgcgtttg tcggtgcgaa tttagggtgcg	660
agatttgccg tccgcttcgg ttogaagctg attaagccgc tgctgattgt catcagcatt	720
tcgatggctg tgaaattggt gatagacgag agaaatccgc tgtatcagat gattgtttcg	780
atgttttaa	789

<210> 436
 <211> 262

<212> PRT

<213> Neisseria meningitidis

<400> 436

Met Glu Asp Leu Tyr Ile Ile Leu Ala Leu Gly Leu Val Ala Met Ile
1 5 10 15

Ala Gly Phe Ile Asp Ala Ile Ala Gly Gly Gly Gly Leu Ile Thr Leu
20 25 30

Pro Ala Leu Leu Leu Ala Gly Ile Pro Pro Val Ser Ala Ile Ala Thr
35 40 45

Asn Lys Leu Gln Ala Ala Ala Ala Thr Phe Ser Ala Thr Val Ser Phe
50 55 60

Ala Arg Lys Gly Leu Ile Asp Trp Lys Lys Gly Leu Pro Ile Ala Ala
65 70 75 80

Ala Ser Phe Ala Gly Gly Val Val Gly Ala Leu Ser Val Ser Leu Val
85 90 95

Ser Lys Asp Ile Leu Leu Ala Val Val Pro Val Leu Leu Ile Phe Val
100 105 110

Ala Leu Tyr Phe Val Phe Ser Pro Lys Leu Asp Gly Ser Lys Glu Gly
115 120 125

Lys Ala Arg Met Ser Phe Phe Leu Phe Gly Leu Thr Val Ala Pro Leu
130 135 140

Leu Gly Phe Tyr Asp Gly Val Phe Gly Pro Gly Val Gly Ser Phe Phe
145 150 155 160

Leu Ile Ala Phe Ile Val Leu Leu Gly Cys Lys Leu Leu Asn Ala Met
165 170 175

Ser Tyr Thr Lys Leu Ala Asn Val Ala Cys Asn Leu Gly Ser Leu Ser
180 185 190

Val Phe Leu Leu His Gly Ser Ile Ile Phe Pro Ile Ala Ala Thr Met
195 200 205

Ala Val Gly Ala Phe Val Gly Ala Asn Leu Gly Ala Arg Phe Ala Val
210 215 220

Arg Phe Gly Ser Lys Leu Ile Lys Pro Leu Leu Ile Val Ile Ser Ile
225 230 235 240

Ser Met Ala Val Lys Leu Leu Ile Asp Glu Arg Asn Pro Leu Tyr Gln

245

250

255

Met Ile Val Ser Met Phe
260

<210> 437
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 437
 nnnnnnnnn

8

<210> 438
 <211> 231
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 438
 Met Glu Asp Leu Tyr Ile Ile Leu Ala Leu Gly Leu Val Ala Met Ile
 1 5 10 15
 Ala Gly Phe Ile Asp Ala Ile Ala Gly Gly Gly Gly Leu Ile Thr Leu
 20 25 30
 Pro Ala Leu Leu Leu Ala Gly Ile Pro Pro Val Ser Ala Ile Ala Thr
 35 40 45
 Asn Lys Leu Gln Ala Ala Ala Thr Phe Ser Ala Thr Val Ser Phe
 50 55 60
 Ala Arg Lys Gly Leu Ile Asp Trp Lys Lys Gly Leu Pro Ile Ala Ala
 65 70 75 80
 Ala Ser Phe Ala Gly Gly Val Val Gly Ala Leu Ser Val Ser Leu Val
 85 90 95
 Ser Lys Asp Ile Leu Leu Ala Val Val Pro Val Leu Leu Ile Phe Val
 100 105 110
 Ala Leu Tyr Phe Val Phe Ser Pro Lys Leu Asp Gly Ser Lys Glu Gly
 115 120 125
 Lys Ala Arg Met Ser Phe Phe Leu Phe Gly Leu Thr Val Ala Thr Ala
 130 135 140
 Phe Gly Phe Leu Arg Arg Cys Val Arg Thr Gly Cys Arg Leu Val Phe
 145 150 155 160
 Ser Asp Cys Leu Tyr Cys Phe Ala Arg Leu Gln Ala Val Glu Arg Asp
 165 170 175
 Val Leu His Gln Ile Gly Glu Arg Cys Leu Gln Ser Trp Phe Ala Ile
 180 185 190
 Gly Ile Pro Ala Ala Arg Phe Asp Tyr Phe Pro Asp Cys Gly Asn Asp

Ala Leu Tyr Phe Val Phe Ser Pro Lys Leu Asp Gly Ser Lys Glu Gly
115 120 125

Lys Ala Arg Met Ser Phe Phe Leu Phe Gly Leu Thr Val Ala Pro Leu
130 135 140

Leu Gly Phe Tyr Asp Gly Val Phe Gly Pro Gly Val Gly Ser Phe Phe
145 150 155 160

Leu Ile Ala Phe Ile Val Leu Leu Gly Cys Lys Leu Leu Asn Ala Met
165 170 175

Ser Tyr Thr Lys Leu Ala Asn Val Ala Cys Asn Leu Gly Ser Leu Ser
180 185 190

Val Phe Leu Leu His Gly Ser Ile Ile Phe Pro Ile Val Ala Thr Met
195 200 205

Ala Val Gly Ala Phe Val Gly Ala Asn Leu Gly Ala Arg Phe Ala Val
210 215 220

Arg Phe Gly Ser Lys Leu Ile Lys Pro Leu Leu Ile Val Ile Ser Ile
225 230 235 240

Ser Met Ala Val Lys Leu Leu Ile Asp Glu Arg Asn Pro Leu Tyr Gln
245 250 255

Met Ile Val Ser Met Phe
260

<210> 441
<211> 635
<212> DNA
<213> Neisseria meningitidis

<400> 441
ctgctagggg attgcatcgg ttatcggtac ggctgttgca gcaaaaccag ccgcagacgg 60
attatttggg caaattcgga tcgttttggg cgagattttt ggttttctgg gactgtatga 120
cgtctatgct tcggcatggg ttgtcggtat catgatgttt ttggtgggtt ctaccagttt 180
gtgcctgatt cgcaatgtgc cgccgttctg gcgcgaaatg aagtcttttc gggaaaagggt 240
taaagaaaaa tctctggcgg cgatgcgcca ttcttcgctg ttggatgtaa aaattgcgcc 300
cgaggttgcc aaacgttatc tggaagtaca aggttttcag gggaaaacca ttaaccgtga 360
agacgggtcg gttctgattg ccgccaaaaa aggcacaatg aacaaatggg gctatatctt 420
tgcccatggt gctttgattg tcatttgcct gggcgggttg atagacagta acctgctggt 480
gaaactgggt atgctgaccg gtcggattgt tccggacaat caggcgggtt atgccaagga 540
tttcaagccc gaaagtattt tgggtgcgtc caatctctca tttaggggca acgtcaatat 600
ttccgagggg cagagtgcgg atgtgggttt cctga 635

<210> 442
<211> 210
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature

<222> (31)..(31)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (181)..(181)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (186)..(186)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (201)..(201)
 <223> Xaa= any amino acid

<400> 442
 Leu Leu Gly Ile Ala Ser Val Ile Gly Thr Leu Leu Gln Gln Asn Gln
 1 5 10 15
 Pro Gln Thr Asp Tyr Leu Val Lys Phe Gly Ser Phe Trp Ala Xaa Ile
 20 25 30
 Phe Gly Phe Leu Gly Leu Tyr Asp Val Tyr Ala Ser Ala Trp Phe Val
 35 40 45
 Val Ile Met Met Phe Leu Val Val Ser Thr Ser Leu Cys Leu Ile Arg
 50 55 60
 Asn Val Pro Pro Phe Trp Arg Glu Met Lys Ser Phe Arg Glu Lys Val
 65 70 75 80
 Lys Glu Lys Ser Leu Ala Ala Met Arg His Ser Ser Leu Leu Asp Val
 85 90 95
 Lys Ile Ala Pro Glu Val Ala Lys Arg Tyr Leu Glu Val Gln Gly Phe
 100 105 110
 Gln Gly Lys Thr Ile Asn Arg Glu Asp Gly Ser Val Leu Ile Ala Ala
 115 120 125
 Lys Lys Gly Thr Met Asn Lys Trp Gly Tyr Ile Phe Ala His Val Ala
 130 135 140
 Leu Ile Val Ile Cys Leu Gly Gly Leu Ile Asp Ser Asn Leu Leu Leu
 145 150 155 160
 Lys Leu Gly Met Leu Thr Gly Arg Ile Phe Arg Thr Ile Arg Arg Phe
 165 170 175
 Met Pro Arg Ile Xaa Lys Pro Glu Ser Xaa Phe Gly Cys Val Gln Ser
 180 185 190
 Leu Ile Gly Gln Arg Gln Tyr Phe Xaa Arg Gly Arg Val Arg Met Trp

195

200

205

Phe Ser
210

<210> 443
<211> 8
<212> DNA
<213> *Neisseria gonorrhoeae*

<220>
<221> misc_feature
<222> (1)..(8)
<223> N= Unknown

<400> 443
nnnnnnnn

8

<210> 444
<211> 241
<212> PRT
<213> *Neisseria meningitidis*

<220>
<221> misc_feature
<222> (170)..(170)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (186)..(186)
<223> Xaa= any amino acid

<400> 444
Met Ser Lys Ser Arg Ile Ser Pro Thr Leu Leu Ser Arg Pro Trp Phe
1 5 10 15

Ala Phe Phe Ser Ser Met Arg Phe Ala Val Ala Leu Leu Ser Leu Leu
20 25 30

Gly Ile Ala Ser Val Ile Gly Thr Val Leu Gln Gln Asn Gln Pro Gln
35 40 45

Thr Asp Tyr Leu Val Lys Phe Gly Pro Phe Trp Thr Arg Ile Phe Asp
50 55 60

Phe Leu Gly Leu Tyr Asp Val Tyr Ala Ser Ala Trp Phe Val Val Ile
65 70 75 80

Met Met Phe Leu Val Val Ser Thr Ser Leu Cys Leu Ile Arg Asn Val
85 90 95

Pro Pro Phe Trp Arg Glu Met Lys Ser Phe Arg Glu Lys Val Lys Glu
100 105 110

Lys Ser Leu Ala Ala Met Arg His Ser Ser Leu Leu Asp Val Lys Ile
 115 120 125
 Ala Pro Glu Val Ala Lys Arg Tyr Leu Glu Val Arg Gly Phe Gln Gly
 130 135 140
 Lys Thr Val Ser Arg Glu Asp Gly Ser Val Leu Ile Ala Ala Lys Lys
 145 150 155 160
 Gly Thr Met Asn Lys Trp Gly Tyr Ile Xaa Ala His Val Ala Leu Ile
 165 170 175
 Val Ile Cys Leu Gly Arg Leu Ile Asn Xaa Asn Leu Leu Leu Lys Leu
 180 185 190
 Gly Met Leu Ala Gly Ser Ile Phe Arg Asn Asn Arg Arg Val Met Pro
 195 200 205
 Arg Ile Ser Lys Pro Glu Ser Ile Trp Gly Gly Val Gln Ser Leu Ile
 210 215 220
 Lys Gly Gln Arg Gln Tyr Phe Gln Arg Gly Lys Val Arg Met Trp Phe
 225 230 235 240

Ser

<210> 445
 <211> 1056
 <212> DNA
 <213> Neisseria meningitidis

<400> 445
 atgccgtctg aaacacgcct gccgaacttt atccgcgtct tgatatttgc cctgggtttc 60
 atcttcctga acgcctgttc ggaacaaacc gcgcaaaccg ttaccctgca aggcgaaacg 120
 atgggcacga cctataccgt caaatatcctt tcaaataatc gggacaaact cccctcacct 180
 gccgaaatac aaaaacgcat cgatgacgcg cttaaagaag tcaaccggca gatgtccacc 240
 tatcagcccg actccgaaat cagccggttc aaccaacaca cagccggcaa gccctccgc 300
 atttcaagcg acttcgcaca cgttactgcc gaagccgtcc gcctgaaccg cctgacacac 360
 ggcgcgctgg acgtaaccgt cggcccttg gtcaaccttt ggggattcgg ccccgacaaa 420
 tccgttaccc gtgaaccgtc gccggaacaa atcaaacagg cggcatctta tacgggcata 480
 gacaaaatca ttttgaaaca aggcaaagat tacgcttcct tgagcaaaac ccacccaag 540
 gcctatttgg atttatcttc gattgcaaaa ggcttcggcg ttgataaagt tgcgggcgaa 600
 ctggaaaaat acggcattca aaattatctg gtcgaaatcg gcggcgagtt gcacggcaaa 660
 ggcaaaaacg cgcgcggcga accgtggcgc atcggtatcg agcagcccaa tatcgtccaa 720
 ggcggaata cgcagattat cgtcccgtcg aacaaccgtt cgcttgccac ttccggcgat 780
 taccgtatatt tccacgtcga taaaaacggc aaacgcctct cccatatcat caaccggaac 840
 aacaaacgac ccatcagcca caacctcgcc tccatcagcg tggtcgcaga cagtgcgatg 900
 acggcgggacg gcttgtccac aggattattc gtattgggcg aaaccgaagc cttaaagctg 960
 gcagagcgcg aaaaactcgc tgttttcctg attgtcaggg ataaaggcgg ctaccgcacc 1020
 gccatgtctt ccgaatttga aaaactgctc cgctaa 1056

<210> 446
 <211> 351
 <212> PRT
 <213> Neisseria meningitidis

<400> 446

Met Pro Ser Glu Thr Arg Leu Pro Asn Phe Ile Arg Val Leu Ile Phe
1 5 10 15

Ala Leu Gly Phe Ile Phe Leu Asn Ala Cys Ser Glu Gln Thr Ala Gln
20 25 30

Thr Val Thr Leu Gln Gly Glu Thr Met Gly Thr Thr Tyr Thr Val Lys
35 40 45

Tyr Leu Ser Asn Asn Arg Asp Lys Leu Pro Ser Pro Ala Glu Ile Gln
50 55 60

Lys Arg Ile Asp Asp Ala Leu Lys Glu Val Asn Arg Gln Met Ser Thr
65 70 75 80

Tyr Gln Pro Asp Ser Glu Ile Ser Arg Phe Asn Gln His Thr Ala Gly
85 90 95

Lys Pro Leu Arg Ile Ser Ser Asp Phe Ala His Val Thr Ala Glu Ala
100 105 110

Val Arg Leu Asn Arg Leu Thr His Gly Ala Leu Asp Val Thr Val Gly
115 120 125

Pro Leu Val Asn Leu Trp Gly Phe Gly Pro Asp Lys Ser Val Thr Arg
130 135 140

Glu Pro Ser Pro Glu Gln Ile Lys Gln Ala Ala Ser Tyr Thr Gly Ile
145 150 155 160

Asp Lys Ile Ile Leu Lys Gln Gly Lys Asp Tyr Ala Ser Leu Ser Lys
165 170 175

Thr His Pro Lys Ala Tyr Leu Asp Leu Ser Ser Ile Ala Lys Gly Phe
180 185 190

Gly Val Asp Lys Val Ala Gly Glu Leu Glu Lys Tyr Gly Ile Gln Asn
195 200 205

Tyr Leu Val Glu Ile Gly Gly Glu Leu His Gly Lys Gly Lys Asn Ala
210 215 220

Arg Gly Glu Pro Trp Arg Ile Gly Ile Glu Gln Pro Asn Ile Val Gln
225 230 235 240

Gly Gly Asn Thr Gln Ile Ile Val Pro Leu Asn Asn Arg Ser Leu Ala
245 250 255

Thr Ser Gly Asp Tyr Arg Ile Phe His Val Asp Lys Asn Gly Lys Arg
260 265 270

Leu Ser His Ile Ile Asn Pro Asn Asn Lys Arg Pro Ile Ser His Asn
275 280 285

Leu Ala Ser Ile Ser Val Val Ala Asp Ser Ala Met Thr Ala Asp Gly

290		295		300
Leu Ser Thr Gly Leu Phe Val Leu Gly Glu Thr Glu Ala Leu Lys Leu				
305		310	315	320
Ala Glu Arg Glu Lys Leu Ala Val Phe Leu Ile Val Arg Asp Lys Gly				
	325		330	335
Gly Tyr Arg Thr Ala Met Ser Ser Glu Phe Glu Lys Leu Leu Arg				
	340		345	350

<210> 447
 <211> 1056
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (166)..(166)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (174)..(174)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (195)..(195)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (586)..(586)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (588)..(588)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (645)..(645)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (662)..(662)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (763)..(763)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (883)..(883)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (915)..(915)
 <223> N= Unknown

<400> 447
 atgccgtctg aaacacgcct gccgaacttt atccgcacct tgatatttgc cctgagtttt 60
 atcttcctga acgcctgttc ggaacaaacc gcgcaaaccg ttaccctgca aggtgaaacg 120
 atgggcacga cctataccgt caaatacctt tcaaataatc gggacnaact cccntcacct 180
 gccgaaatac aaaancgcat cgatgacgcg cttaaagaag tcaaccggca gatgtccacc 240
 tatcagcccg actccgaaat cagccgggtc aaccaacaca cagccggcaa gcccctccgc 300
 atttcaagcg acttcgcaca cgttactgcc gaagcgcgtc acctgaaccg cctgacacac 360
 ggcgcgctgg acgtaaccgt cggccccttg gtcaaccttt ggggattcgg ccccgacaaa 420
 tccgttaccg gtgaaccgtc gccggaacaa atcaaacaaag cagcatctta tacgggcata 480
 gacaaaatca ttttgaaaca aggc aaagat tacgcttctt tgagcaaaac ccaccccaag 540
 gcctattttg atttatcttc gattgccaaa ggcttcggcg ttgatnangt tgcggggcgaa 600
 ctggaaaaat acggcattca aaattatctg gtcgaaatcg gcgngaggtt gcacggcaaa 660
 gncaaaaacg cgcgcggcga accttggcgc atcggcatcg aacagcccaa catcgtccaa 720
 ggcggcaata cgcagattat cgtcccgtcg aacaaccgtt cgnttgccac ttccggcgat 780
 taccgtattt tccacgtcga taaaagcggc aaacgcctct cccatatcat taatccgaac 840
 aacaaacgac ccatcagcca caacctcgcc tccatcagcg tgntcgcaga cagtgcgatg 900
 acggcggacg gcttntccac aggattattc gtattgggcg aaaccgaagc cttaaagctg 960
 gcagagcgcg aaaaactcgc tgttttcctg attgtcaggg ataaaggcgg ctaccgcacc 1020
 gccatgtctt ccgaatttga aaaactgctc cgctaa 1056

<210> 448
 <211> 351
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (56)..(56)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (65)..(65)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (196)..(196)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (221)..(221)
 <223> Xaa= any amino acid

<220>

<221> misc_feature
<222> (255)..(255)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (295)..(295)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (305)..(305)
<223> Xaa= any amino acid

<400> 448
Met Pro Ser Glu Thr Arg Leu Pro Asn Phe Ile Arg Thr Leu Ile Phe
1 5 10 15
Ala Leu Ser Phe Ile Phe Leu Asn Ala Cys Ser Glu Gln Thr Ala Gln
20 25 30
Thr Val Thr Leu Gln Gly Glu Thr Met Gly Thr Thr Tyr Thr Val Lys
35 40 45
Tyr Leu Ser Asn Asn Arg Asp Xaa Leu Pro Ser Pro Ala Glu Ile Gln
50 55 60
Xaa Arg Ile Asp Asp Ala Leu Lys Glu Val Asn Arg Gln Met Ser Thr
65 70 75 80
Tyr Gln Pro Asp Ser Glu Ile Ser Arg Phe Asn Gln His Thr Ala Gly
85 90 95
Lys Pro Leu Arg Ile Ser Ser Asp Phe Ala His Val Thr Ala Glu Ala
100 105 110
Val His Leu Asn Arg Leu Thr His Gly Ala Leu Asp Val Thr Val Gly
115 120 125
Pro Leu Val Asn Leu Trp Gly Phe Gly Pro Asp Lys Ser Val Thr Arg
130 135 140
Glu Pro Ser Pro Glu Gln Ile Lys Gln Ala Ala Ser Tyr Thr Gly Ile
145 150 155 160
Asp Lys Ile Ile Leu Lys Gln Gly Lys Asp Tyr Ala Ser Leu Ser Lys
165 170 175
Thr His Pro Lys Ala Tyr Leu Asp Leu Ser Ser Ile Ala Lys Gly Phe
180 185 190
Gly Val Asp Xaa Val Ala Gly Glu Leu Glu Lys Tyr Gly Ile Gln Asn
195 200 205

Tyr Leu Val Glu Ile Gly Gly Glu Leu His Gly Lys Xaa Lys Asn Ala
 210 215 220

Arg Gly Glu Pro Trp Arg Ile Gly Ile Glu Gln Pro Asn Ile Val Gln
 225 230 235 240

Gly Gly Asn Thr Gln Ile Ile Val Pro Leu Asn Asn Arg Ser Xaa Ala
 245 250 255

Thr Ser Gly Asp Tyr Arg Ile Phe His Val Asp Lys Ser Gly Lys Arg
 260 265 270

Leu Ser His Ile Ile Asn Pro Asn Asn Lys Arg Pro Ile Ser His Asn
 275 280 285

Leu Ala Ser Ile Ser Val Xaa Ala Asp Ser Ala Met Thr Ala Asp Gly
 290 295 300

Xaa Ser Thr Gly Leu Phe Val Leu Gly Glu Thr Glu Ala Leu Lys Leu
 305 310 315 320

Ala Glu Arg Glu Lys Leu Ala Val Phe Leu Ile Val Arg Asp Lys Gly
 325 330 335

Gly Tyr Arg Thr Ala Met Ser Ser Glu Phe Glu Lys Leu Leu Arg
 340 345 350

<210> 449
 <211> 1056
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 449
 atgccgtctg aaacacgcct gccgaacctt atccgcgcct tgatatttgc cctgggtttc 60
 atcttctctga acgcctgttc ggaacaaacc gcgcaaaccg ttaccctgca aggcgaaacg 120
 atgggtacga cctataccgt caaataccct tcaaataatc gggacaaact cccctcccct 180
 gccaaaatac aaaagcgcgt tgatgatgct cttaaagaag tcaaccggca gatgtccacc 240
 taccagaccg attccgaaat cagccgggtc aaccaacaca cagccggcaa gcccctccgc 300
 atttcaagcg atttcgcaca cgttaccgcc gaagccgtcc gctgaaccg cctgattcac 360
 ggcgcactgg acgtaaccgt cggccctttg gtcaaccttt gggggttcgg ccccgacaaa 420
 tccgttaccg gtgaaccgtc gccggaacaa atcaaacagg cggcatctta tacgggcata 480
 gacaaaatca ttttgcaaca aggcaaagat tacgcttctt tgagcaaaac ccaccccaaa 540
 gcctatttgg atttatcttc gattgccaaa ggcttcggcg ttgataaagt tgcgggcgaa 600
 ctggaaaaat acggcattca aaattatctg gtcgaaatcg gcggcgagtt gcacggcaaa 660
 ggcaaaaatg cgcacggcgä accgtggcgä atcgggtatag agcaacccaa tatcatccaa 720
 ggcgggcaata cgcagattat cgtcccgtcg aacaaccgtt cgcttgccac ttccggcgat 780
 taccgtatatt tccacgtcga taaaaacggc aaacgccttt cccacatcat caatcccaac 840
 aacaaacgac ccatcagcca caacctcgcc tccatcagcg tggctcaga cagtgaatg 900
 acggcgggacg gtttatccac aggattatatt gttttaggcg aaaccgaagc cttaaggctg 960
 gcagaacaag aaaaactcgc tgttttccta attgtccggg ataaggacgg ctaccgcacc 1020
 gccatgtctt ccgaatttgc caagctgctc cgctaa 1056

<210> 450
 <211> 351
 <212> PRT

<213> Neisseria gonorrhoeae

<400> 450

Met Pro Ser Glu Thr Arg Leu Pro Asn Leu Ile Arg Ala Leu Ile Phe

1		5						10					15				
Ala	Leu	Gly	Phe	Ile	Phe	Leu	Asn	Ala	Cys	Ser	Glu	Gln	Thr	Ala	Gln		
		20						25					30				
Thr	Val	Thr	Leu	Gln	Gly	Glu	Thr	Met	Gly	Thr	Thr	Tyr	Thr	Val	Lys		
		35					40					45					
Tyr	Leu	Ser	Asn	Asn	Arg	Asp	Lys	Leu	Pro	Ser	Pro	Ala	Lys	Ile	Gln		
	50					55					60						
Lys	Arg	Ile	Asp	Asp	Ala	Leu	Lys	Glu	Val	Asn	Arg	Gln	Met	Ser	Thr		
65					70					75					80		
Tyr	Gln	Thr	Asp	Ser	Glu	Ile	Ser	Arg	Phe	Asn	Gln	His	Thr	Ala	Gly		
			85						90						95		
Lys	Pro	Leu	Arg	Ile	Ser	Ser	Asp	Phe	Ala	His	Val	Thr	Ala	Glu	Ala		
			100					105						110			
Val	Arg	Leu	Asn	Arg	Leu	Thr	His	Gly	Ala	Leu	Asp	Val	Thr	Val	Gly		
			115					120						125			
Pro	Leu	Val	Asn	Leu	Trp	Gly	Phe	Gly	Pro	Asp	Lys	Ser	Val	Thr	Arg		
						135					140						
Glu	Pro	Ser	Pro	Glu	Gln	Ile	Lys	Gln	Ala	Ala	Ser	Tyr	Thr	Gly	Ile		
145					150					155					160		
Asp	Lys	Ile	Ile	Leu	Gln	Gln	Gly	Lys	Asp	Tyr	Ala	Ser	Leu	Ser	Lys		
				165				170							175		
Thr	His	Pro	Lys	Ala	Tyr	Leu	Asp	Leu	Ser	Ser	Ile	Ala	Lys	Gly	Phe		
			180					185						190			
Gly	Val	Asp	Lys	Val	Ala	Gly	Glu	Leu	Glu	Lys	Tyr	Gly	Ile	Gln	Asn		
		195						200					205				
Tyr	Leu	Val	Glu	Ile	Gly	Gly	Glu	Leu	His	Gly	Lys	Gly	Lys	Asn	Ala		
	210					215						220					
His	Gly	Glu	Pro	Trp	Arg	Ile	Gly	Ile	Glu	Gln	Pro	Asn	Ile	Ile	Gln		
225					230					235					240		
Gly	Gly	Asn	Thr	Gln	Ile	Ile	Val	Pro	Leu	Asn	Asn	Arg	Ser	Leu	Ala		
				245					250						255		
Thr	Ser	Gly	Asp	Tyr	Arg	Ile	Phe	His	Val	Asp	Lys	Asn	Gly	Lys	Arg		
			260					265						270			
Leu	Ser	His	Ile	Ile	Asn	Pro	Asn	Asn	Lys	Arg	Pro	Ile	Ser	His	Asn		

275 280 285

Leu Ala Ser Ile Ser Val Val Ser Asp Ser Ala Met Thr Ala Asp Gly
 290 295 300

Leu Ser Thr Gly Leu Phe Val Leu Gly Glu Thr Glu Ala Leu Arg Leu
 305 310 315 320

Ala Glu Gln Glu Lys Leu Ala Val Phe Leu Ile Val Arg Asp Lys Asp
 325 330 335

Gly Tyr Arg Thr Ala Met Ser Ser Glu Phe Ala Lys Leu Leu Arg
 340 345 350

<210> 451

<211> 789

<212> DNA

<213> Neisseria meningitidis

<400> 451

ccgtgccgcc	gacagggcga	cgacgtgtat	gcggcgccacg	cgtcccgtca	aaaattgtgg	60
ctgcgcttca	tcggcgcccg	gtcgcatcaa	aatatacggg	gcggcgccggc	tgcggacggg	120
tggcgcaaag	gcgtgcaa	cggcggcgag	gtgtttgtac	ggcaaatga	aggcagccka	180
ytggcaatcg	gcgtgatggg	cggcagggcc	ggccagcagc	cwtcagtcaa	cggcaaaggc	240
ggtgcggcag	gcagtgattt	gtatggttat	ggcgggggtg	tttatgctgc	gtggcatcag	300
ttgcgcgata	aacaaacggg	tgcgtatttg	gacggctggg	tgcaatacca	acgtttcaaa	360
caccgcacat	atgatgaaaa	ccgtgcggaa	cgctacaaaa	ccaaagggtg	gacggcttct	420
gtcgaaggcg	gctacaacgc	gcttgtggcg	gaaggcattg	tcggaaaagg	caataatgtg	480
cggttttacc	tacaaccgca	ggcgcagttt	acctacttgg	gcgtaaacgg	cggctttacc	540
gacagcgagg	ggacggcggt	cggactgctc	ggcagcggtc	agtggcaaag	ccgcgccggc	600
attcggggcaa	aaaccgcgtt	tgctttgcgt	aacggtgtca	atcttcagcc	ttttgccgct	660
tttaatgttt	tgacacaggtc	aaaatctttc	ggcgtggaaa	tggacggcga	aaaacagacg	720
ctggcaggca	ggacggcact	cgaagggcgg	ttcgggtattg	aagccggttg	gaaaggccat	780
atgtccgca						789

<210> 452

<211> 263

<212> PRT

<213> Neisseria meningitidis

<220>

<221> misc_feature

<222> (60)..(60)

<223> Xaa= any amino acid

<400> 452

Pro Cys Arg Arg Gln Gly Asp Asp Val Tyr Ala Ala His Ala Ser Arg
 1 5 10 15

Gln Lys Leu Trp Leu Arg Phe Ile Gly Gly Arg Ser His Gln Asn Ile
 20 25 30

Arg Gly Gly Ala Ala Ala Asp Gly Trp Arg Lys Gly Val Gln Ile Gly
 35 40 45

Gly Glu Val Phe Val Arg Gln Asn Glu Gly Ser Xaa Leu Ala Ile Gly
50 55 60

Val Met Gly Gly Arg Ala Gly Gln His Ala Ser Val Asn Gly Lys Gly
65 70 75 80

Gly Ala Ala Gly Ser Asp Leu Tyr Gly Tyr Gly Gly Gly Val Tyr Ala
85 90 95

Ala Trp His Gln Leu Arg Asp Lys Gln Thr Gly Ala Tyr Leu Asp Gly
100 105 110

Trp Leu Gln Tyr Gln Arg Phe Lys His Arg Ile Asn Asp Glu Asn Arg
115 120 125

Ala Glu Arg Tyr Lys Thr Lys Gly Trp Thr Ala Ser Val Glu Gly Gly
130 135 140

Tyr Asn Ala Leu Val Ala Glu Gly Ile Val Gly Lys Gly Asn Asn Val
145 150 155 160

Arg Phe Tyr Leu Gln Pro Gln Ala Gln Phe Thr Tyr Leu Gly Val Asn
165 170 175

Gly Gly Phe Thr Asp Ser Glu Gly Thr Ala Val Gly Leu Leu Gly Ser
180 185 190

Gly Gln Trp Gln Ser Arg Ala Gly Ile Arg Ala Lys Thr Arg Phe Ala
195 200 205

Leu Arg Asn Gly Val Asn Leu Gln Pro Phe Ala Ala Phe Asn Val Leu
210 215 220

His Arg Ser Lys Ser Phe Gly Val Glu Met Asp Gly Glu Lys Gln Thr
225 230 235 240

Leu Ala Gly Arg Thr Ala Leu Glu Gly Arg Phe Gly Ile Glu Ala Gly
245 250 255

Trp Lys Gly His Met Ser Ala
260

<210> 453
<211> 1860
<212> DNA
<213> Neisseria meningitidis

<400> 453
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ttttcatttt cagacaagcc gaaacccggc acttcccatt atttttccag cggtaaaacc 120
gatcaaaatt catccgaata tgggtatgac gaaatcaata tccaaggtaa aaactacaat 180
agcggcatat tcgccgtcga taatatgccc gttgttaaga aatatattac agatacttac 240
ggggataaatt taaaggatgc ggttaagaag caattacagg atttatacaa aacaagaccc 300
gaagcttggg aagaaaataa aaaacggact gaggaggcgt atatagaaca gcttggacca 360
aaatttagta tactcaaaca gaaaaacccc gatttaatta ataaattggt agaagattcc 420

gtactcactc	ctcatagtaa	tacatcacag	actagtctca	acaacatctt	caataaaaaa	480
ttacacgtca	aaatcgaaaa	caaatccac	gtcgccggac	aggtgttgga	actgaccaag	540
atgacgtga	aagattccct	ttgggaaccg	cgccgccatt	ccgacatcca	tatgctggaa	600
acttccgata	atgcccgcat	ccgcctgaac	acgaaagatg	aaaaactgac	cgtccataaa	660
gcgtatcagg	gcggtgcgga	tttctgttc	ggctacgacg	tgcgggagtc	ggacaaaccc	720
gccctgacct	ttgaagaaaa	agtcagcgga	caatccggcg	tggttttgga	acgccggccg	780
gaaaatctga	aaacgctcga	cgggcgcaaa	ctgattgcgg	cggaaaaggc	agactcta	840

tcgtttgcgt	ttaaacaaaa	ttaccggcag	ggactgtacg	aattattgct	caagcaatgc	900
gaaggcggat	tttgcctggg	cgtgcagcgt	ttggctatcc	ccgaggcgga	agcggtttta	960
tatgcccac	aggcttatgc	ggcaaatact	ttgttcgggc	tgcgtgccgc	cgacaggggc	1020
gacgacgtgt	atgcccgcca	tccgtcccgt	caaaaattgt	ggctgcgctt	catcggcggc	1080
cggtcgcac	aaaatatacg	gggcggcgcg	gctgcggacg	ggcggcgcaa	aggcgtgcaa	1140
atcggcgggc	agggtgttgt	acggcaaaat	gaaggcagcc	ggctggcaat	cggcgtgatg	1200
ggcggcaggg	ctggccagca	cgcacagtc	aacggcaaa	gcggtgcggc	aggcagttat	1260
ttgcatgggt	atggcggggg	tgtttatgct	gcgtggcatc	agttgcgcga	taaacaaacg	1320
ggtgcgtatt	tggcgggctg	gttgcaatac	caacgtttca	aacaccgcat	caatgatgaa	1380
aaccgtgcgg	aacgctacaa	aaccaaagg	tggacggctt	ctgtcgaagg	cggctacaac	1440
gcgcttgtgg	cgggaaggcgt	tgtcggaaaa	ggcaataatg	tgcggtttta	cctgcaaccg	1500
caggcgcagt	ttacctactt	gggcgtaaac	ggcggtttta	ccgacagcga	ggggacggcg	1560
gtcggactgc	tcggcagcgg	tcagtggcaa	agccgcgcgc	gcattcgggc	aaaaaccggt	1620
tttgccttgc	gtaacggtgt	caatcttcag	ccttttgccg	cttttaaatg	tttgacaggg	1680
tcaaaatctt	tcggcgtgga	aatggacggc	gaaaaacaga	cgctggcagg	caggacggcg	1740
ctcgaagggc	ggttcggcat	tgaagccggt	tggaaaggcc	atatgtccgc	acgcacggga	1800
tacggcaaaa	ggacggacgg	cgacaaagaa	gccgcattgt	cgctcaa	atgctgtttga	1860

<210> 454

<211> 619

<212> PRT

<213> Neisseria meningitidis

<400> 454

Met	Phe	Arg	Ala	Gln	Leu	Gly	Ser	Asn	Thr	Arg	Ser	Thr	Lys	Ile	Gly
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Asp	Asp	Ala	Asp	Phe	Ser	Phe	Ser	Asp	Lys	Pro	Lys	Pro	Gly	Thr	Ser
			20					25					30		
His	Tyr	Phe	Ser	Ser	Gly	Lys	Thr	Asp	Gln	Asn	Ser	Ser	Glu	Tyr	Gly
		35				40						45			
Tyr	Asp	Glu	Ile	Asn	Ile	Gln	Gly	Lys	Asn	Tyr	Asn	Ser	Gly	Ile	Leu
	50					55					60				
Ala	Val	Asp	Asn	Met	Pro	Val	Val	Lys	Lys	Tyr	Ile	Thr	Asp	Thr	Tyr
65					70					75				80	
Gly	Asp	Asn	Leu	Lys	Asp	Ala	Val	Lys	Lys	Gln	Leu	Gln	Asp	Leu	Tyr
			85					90						95	
Lys	Thr	Arg	Pro	Glu	Ala	Trp	Glu	Glu	Asn	Lys	Lys	Arg	Thr	Glu	Glu
			100				105						110		
Ala	Tyr	Ile	Glu	Gln	Leu	Gly	Pro	Lys	Phe	Ser	Ile	Leu	Lys	Gln	Lys
	115						120					125			

Asn	Pro	Asp	Leu	Ile	Asn	Lys	Leu	Val	Glu	Asp	Ser	Val	Leu	Thr	Pro	130	135	140
His	Ser	Asn	Thr	Ser	Gln	Thr	Ser	Leu	Asn	Asn	Ile	Phe	Asn	Lys	Lys	145	150	155
Leu	His	Val	Lys	Ile	Glu	Asn	Lys	Ser	His	Val	Ala	Gly	Gln	Val	Leu	165	170	175
Glu	Leu	Thr	Lys	Met	Thr	Leu	Lys	Asp	Ser	Leu	Trp	Glu	Pro	Arg	Arg	180	185	190
His	Ser	Asp	Ile	His	Met	Leu	Glu	Thr	Ser	Asp	Asn	Ala	Arg	Ile	Arg	195	200	205
Leu	Asn	Thr	Lys	Asp	Glu	Lys	Leu	Thr	Val	His	Lys	Ala	Tyr	Gln	Gly	210	215	220
Gly	Ala	Asp	Phe	Leu	Phe	Gly	Tyr	Asp	Val	Arg	Glu	Ser	Asp	Lys	Pro	225	230	235
Ala	Leu	Thr	Phe	Glu	Glu	Lys	Val	Ser	Gly	Gln	Ser	Gly	Val	Val	Leu	245	250	255
Glu	Arg	Arg	Pro	Glu	Asn	Leu	Lys	Thr	Leu	Asp	Gly	Arg	Lys	Leu	Ile	260	265	270
Ala	Ala	Glu	Lys	Ala	Asp	Ser	Asn	Ser	Phe	Ala	Phe	Lys	Gln	Asn	Tyr	275	280	285
Arg	Gln	Gly	Leu	Tyr	Glu	Leu	Leu	Leu	Lys	Gln	Cys	Glu	Gly	Gly	Phe	290	295	300
Cys	Leu	Gly	Val	Gln	Arg	Leu	Ala	Ile	Pro	Glu	Ala	Glu	Ala	Val	Leu	305	310	315
Tyr	Ala	Gln	Gln	Ala	Tyr	Ala	Ala	Asn	Thr	Leu	Phe	Gly	Leu	Arg	Ala	325	330	335
Ala	Asp	Arg	Gly	Asp	Asp	Val	Tyr	Ala	Ala	Asp	Pro	Ser	Arg	Gln	Lys	340	345	350
Leu	Trp	Leu	Arg	Phe	Ile	Gly	Gly	Arg	Ser	His	Gln	Asn	Ile	Arg	Gly	355	360	365
Gly	Ala	Ala	Ala	Asp	Gly	Arg	Arg	Lys	Gly	Val	Gln	Ile	Gly	Gly	Glu	370	375	380
Val	Phe	Val	Arg	Gln	Asn	Glu	Gly	Ser	Arg	Leu	Ala	Ile	Gly	Val	Met	385	390	395
Gly	Gly	Arg	Ala	Gly	Gln	His	Ala	Ser	Val	Asn	Gly	Lys	Gly	Gly	Ala	405	410	415
Ala	Gly	Ser	Tyr	Leu	His	Gly	Tyr	Gly	Gly	Gly	Val	Tyr	Ala	Ala	Trp	420	425	430

His Gln Leu Arg Asp Lys Gln Thr Gly Ala Tyr Leu Asp Gly Trp Leu
 435 440 445
 Gln Tyr Gln Arg Phe Lys His Arg Ile Asn Asp Glu Asn Arg Ala Glu
 450 455 460
 Arg Tyr Lys Thr Lys Gly Trp Thr Ala Ser Val Glu Gly Gly Tyr Asn
 465 470 475 480
 Ala Leu Val Ala Glu Gly Val Val Gly Lys Gly Asn Asn Val Arg Phe
 485 490 495
 Tyr Leu Gln Pro Gln Ala Gln Phe Thr Tyr Leu Gly Val Asn Gly Gly
 500 505 510
 Phe Thr Asp Ser Glu Gly Thr Ala Val Gly Leu Leu Gly Ser Gly Gln
 515 520 525
 Trp Gln Ser Arg Ala Gly Ile Arg Ala Lys Thr Arg Phe Ala Leu Arg
 530 535 540
 Asn Gly Val Asn Leu Gln Pro Phe Ala Ala Phe Asn Val Leu His Arg
 545 550 555 560
 Ser Lys Ser Phe Gly Val Glu Met Asp Gly Glu Lys Gln Thr Leu Ala
 565 570 575
 Gly Arg Thr Ala Leu Glu Gly Arg Phe Gly Ile Glu Ala Gly Trp Lys
 580 585 590
 Gly His Met Ser Ala Arg Ile Gly Tyr Gly Lys Arg Thr Asp Gly Asp
 595 600 605
 Lys Glu Ala Ala Leu Ser Leu Lys Trp Leu Phe
 610 615

<210> 455
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 455
 nnnnnnnn

<210> 456
 <211> 627
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 456

Lys Lys Leu Arg Asp Arg Asn Ser Glu Tyr Trp Lys Glu Glu Thr Tyr
 1 5 10 15
 His Ile Lys Ser Asn Gly Arg Thr Tyr Pro Asn Ile Pro Ala Leu Phe
 20 25 30
 Pro Lys His Pro Phe Asp Pro Phe Glu Asn Ile Asn Asn Ser Lys Lys
 35 40 45
 Ile Ser Phe Tyr Asp Lys Glu Tyr Thr Glu Asp Tyr Leu Val Gly Phe
 50 55 60
 Ala Arg Gly Phe Gly Val Glu Lys Arg Asn Gly Glu Glu Glu Lys Pro
 65 70 75 80
 Leu Arg Gln Tyr Phe Lys Asp Cys Val Asn Thr Glu Asn Ser Asn Asn
 85 90 95
 Asp Asn Cys Lys Ile Ser Ser Phe Gly Asn Tyr Gly Pro Ile Leu Ile
 100 105 110
 Lys Ser Asp Ile Phe Ala Leu Ala Ser Gln Ile Lys Asn Ser His Ile
 115 120 125
 Asn Ser Glu Ile Leu Ser Val Gly Asn Tyr Ile Glu Trp Leu Arg Pro
 130 135 140
 Thr Leu Asn Lys Leu Thr Gly Trp Gln Glu His Leu Tyr Ala Gly Leu
 145 150 155 160
 Asp Pro Phe His Tyr Ile Glu Val Thr Asp Asn Ser His Val Ile Gly
 165 170 175
 Gln Thr Ile Asp Leu Gly Ala Leu Glu Leu Thr Asn Ser Leu Trp Lys
 180 185 190
 Pro Arg Trp Asn Ser Asn Ile Asp Tyr Leu Ile Thr Lys Asn Ala Glu
 195 200 205
 Ile Arg Phe Asn Thr Lys Asn Glu Ser Leu Leu Val Lys Glu Asp Tyr
 210 215 220
 Ala Gly Gly Ala Arg Phe Arg Phe Ala Tyr Asp Leu Lys Asp Lys Val
 225 230 235 240
 Pro Glu Ile Pro Val Leu Thr Phe Glu Lys Asn Ile Thr Gly Thr Ser
 245 250 255
 Asp Ile Ile Phe Glu Gly Lys Ala Leu Asp Asn Leu Lys His Leu Asp
 260 265 270
 Gly His Gln Ile Val Lys Val Asn Asp Thr Ala Asp Lys Asp Ala Phe
 275 280 285
 Arg Leu Ser Ser Lys Tyr Arg Lys Gly Ile Tyr Thr Leu Ser Leu Gln

290					295					300					
Gln	Arg	Pro	Glu	Gly	Phe	Phe	Thr	Lys	Val	Gln	Glu	Arg	Asp	Asp	Ile
305					310					315					320
Ala	Ile	Tyr	Ala	Gln	Gln	Ala	Gln	Ala	Ala	Asn	Thr	Leu	Phe	Ala	Leu
				325					330					335	
Arg	Leu	Asn	Asp	Lys	Asn	Ser	Asp	Ile	Phe	Asp	Arg	Thr	Leu	Pro	Arg
			340					345					350		
Lys	Gly	Leu	Trp	Leu	Arg	Val	Ile	Asp	Gly	His	Ser	Asn	Gln	Trp	Val
		355					360					365			
Gln	Gly	Lys	Thr	Ala	Pro	Val	Glu	Gly	Tyr	Arg	Lys	Gly	Val	Gln	Leu
	370					375					380				
Gly	Gly	Glu	Val	Phe	Thr	Trp	Gln	Asn	Glu	Ser	Asn	Gln	Leu	Ser	Ile
385				390						395					400
Gly	Leu	Met	Gly	Gly	Gln	Ala	Glu	Gln	Arg	Ser	Thr	Phe	Arg	Asn	Pro
				405					410					415	
Asp	Thr	Asp	Asn	Leu	Thr	Thr	Gly	Asn	Val	Lys	Gly	Phe	Gly	Ala	Gly
			420					425					430		
Val	Tyr	Ala	Thr	Trp	His	Gln	Leu	Gln	Asp	Lys	Gln	Thr	Gly	Ala	Tyr
		435					440					445			
Val	Asp	Ser	Trp	Met	Gln	Tyr	Gln	Arg	Phe	Arg	His	Arg	Ile	Asn	Thr
	450					455					460				
Glu	Tyr	Ala	Thr	Glu	Arg	Phe	Thr	Ser	Lys	Gly	Ile	Thr	Ala	Ser	Ile
465				470						475					480
Glu	Ala	Gly	Tyr	Asn	Ala	Leu	Leu	Ala	Glu	His	Phe	Thr	Lys	Lys	Gly
				485					490					495	
Asn	Ser	Leu	Arg	Val	Tyr	Leu	Gln	Pro	Gln	Ala	Gln	Leu	Thr	Tyr	Leu
			500					505					510		
Gly	Val	Asn	Gly	Lys	Phe	Ser	Asp	Ser	Glu	Asn	Ala	Gln	Val	Asn	Leu
		515					520					525			
Leu	Gly	Ser	Arg	Gln	Leu	Gln	Ser	Arg	Val	Gly	Val	Gln	Ala	Lys	Ala
	530					535					540				
Gln	Phe	Ala	Phe	Thr	Asn	Gly	Val	Thr	Phe	Gln	Pro	Phe	Val	Ala	Val
545				550						555					560
Asn	Ser	Ile	Tyr	Gln	Gln	Lys	Pro	Phe	Gly	Val	Glu	Ile	Asp	Gly	Asp
				565					570					575	
Arg	Arg	Val	Ile	Asn	Asn	Lys	Thr	Val	Ile	Glu	Thr	Gln	Leu	Gly	Val
			580					585					590		

Ala Ala Lys Ile Lys Ser His Leu Thr Leu Gln Ala Ser Phe Asn Arg
 595 600 605

Gln Thr Ser Lys His His His Ala Lys Gln Gly Ala Leu Asn Leu Gln
 610 615 620

Trp Thr Phe
 625

<210> 457
 <211> 380

<212> DNA
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (379)..(379)
 <223> N= Unknown

<400> 457
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 cctaaggcta agcctgtgtt tgatgcgaaa ccgagatggg aggttgatag gaagcttaat 120
 aaattgacaa ctctgtgagca ggtggagaaa aatgttcagg aaacgagaag aaggagtcag 180
 agtagtcagt ttaaagccca tgcgcaacga gaatgggaaa ataaaacagg gttagatttt 240
 aatcatttta taggtggtga tatcaataaa aaaggcacag taacaggagg gcatagtcta 300
 acccgtggtg atgtacgggt gatacaacaa acctcggcac ctgataaaca tggggtttat 360
 caagcgacag tggaaattna 380

<210> 458
 <211> 127
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (119)..(119)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (127)..(127)
 <223> Xaa= any amino acid

<400> 458
 Ala Glu Tyr Val Gln Phe Ser Ile Asp Leu Phe Ser Val Gly Lys Ser
 1 5 10 15

Gly Gly Gly Ile Pro Lys Ala Lys Pro Val Phe Asp Ala Lys Pro Arg
 20 25 30

Trp Glu Val Asp Arg Lys Leu Asn Lys Leu Thr Thr Arg Glu Gln Val
 35 40 45

Glu Lys Asn Val Gln Glu Thr Arg Arg Arg Ser Gln Ser Ser Gln Phe

50 55 60
 Lys Ala His Ala Gln Arg Glu Trp Glu Asn Lys Thr Gly Leu Asp Phe
 65 70 75 80
 Asn His Phe Ile Gly Gly Asp Ile Asn Lys Lys Gly Thr Val Thr Gly
 85 90 95
 Gly His Ser Leu Thr Arg Gly Asp Val Arg Val Ile Gln Gln Thr Ser
 100 105 110
 Ala Pro Asp Lys His Gly Xaa Leu Ser Ser Asp Ser Gly Asn Xaa
 115 120 125

<210> 459
 <211> 683
 <212> DNA
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature
 <222> (12)..(12)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (34)..(34)
 <223> N= Unknown

<400> 459
 gcagtgtgcc tnccgatgca tgcacacgcc tcanatttgg caaacgattc ttttatccgg 60
 caggttctcg accgtcagca ttctgaaccc gacgggaaat accacctatt cggcagcagg 120
 ggggaacttg ccgagcgcca gtctcatatc ggattgggaa aaatacaaag ccacagttg 180
 ggcaacctga tgattcaaca ggcgggccatt aaaggaaata tcggctacat tgtccgcttt 240
 tccgatcagc ggcacgaagt ccattccccc ttcgacaacc atgcctcaca ttccgattct 300
 gatgaagccg gtagtcccgt tgacggattt agcctttacc gcatccattg ggacggatac 360
 gaacaccatc ccgcccagcg ctatgacggg ccacagggcg gcggctatcc cgctcccaa 420
 ggcgcgaggg atatatacag ttacgacata aaaggcggtg cccaaaatat ccgcctcaac 480
 ctgaccgaca accgcagcac cggacaacgg cttgcggacc gtttccacaa tgccggtagt 540
 atgctgacgc aaggagtagg cgacggattc aaacgcgcca cccgatacag ccccgagctg 600
 gacagatcgg gcaatgccgc cgaagccttc aacggcactg cagatatcgt taaaaacatc 660
 atcggcgctg caggagaaat tgt 683

<210> 460
 <211> 227
 <212> PRT
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature
 <222> (12)..(12)
 <223> Xaa= any amino acid

<400> 460
 Ala Val Cys Leu Pro Met His Ala His Ala Ser Xaa Leu Ala Asn Asp
 1 5 10 15

Ser Phe Ile Arg Gln Val Leu Asp Arg Gln His Phe Glu Pro Asp Gly
 20 25 30
 Lys Tyr His Leu Phe Gly Ser Arg Gly Glu Leu Ala Glu Arg Gln Ser
 35 40 45
 His Ile Gly Leu Gly Lys Ile Gln Ser His Gln Leu Gly Asn Leu Met
 50 55 60
 Ile Gln Gln Ala Ala Ile Lys Gly Asn Ile Gly Tyr Ile Val Arg Phe
 65 70 75 80
 Ser Asp His Gly His Glu Val His Ser Pro Phe Asp Asn His Ala Ser
 85 90 95
 His Ser Asp Ser Asp Glu Ala Gly Ser Pro Val Asp Gly Phe Ser Leu
 100 105 110
 Tyr Arg Ile His Trp Asp Gly Tyr Glu His His Pro Ala Asp Gly Tyr
 115 120 125
 Asp Gly Pro Gln Gly Gly Gly Tyr Pro Ala Pro Lys Gly Ala Arg Asp
 130 135 140
 Ile Tyr Ser Tyr Asp Ile Lys Gly Val Ala Gln Asn Ile Arg Leu Asn
 145 150 155 160
 Leu Thr Asp Asn Arg Ser Thr Gly Gln Arg Leu Ala Asp Arg Phe His
 165 170 175
 Asn Ala Gly Ser Met Leu Thr Gln Gly Val Gly Asp Gly Phe Lys Arg
 180 185 190
 Ala Thr Arg Tyr Ser Pro Glu Leu Asp Arg Ser Gly Asn Ala Ala Glu
 195 200 205
 Ala Phe Asn Gly Thr Ala Asp Ile Val Lys Asn Ile Ile Gly Ala Ala
 210 215 220
 Gly Glu Ile
 225

<210> 461
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 461
 nnnnnnnn

<210> 462
 <211> 298
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (93)..(93)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (108)..(108)
 <223> Xaa= any amino acid

<400> 462
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 Arg Lys Gln Asp Gly Ala His Gln Arg Phe Gly Arg Tyr Gly Ala Thr
 20 25 30
 Gln Arg Leu Cys Arg Ser Ser His Pro Arg Leu Gly Ser Pro Lys Pro
 35 40 45
 Gln Cys Arg Thr Arg His Arg Ser Arg Gln Gln Tyr Leu Tyr Gly Ser
 50 55 60
 His Pro His Gln Arg Asp Trp Ser Cys Pro Gly Lys Ile Gln Leu Gly
 65 70 75 80
 Arg His His Gly Thr Ser Cys Arg Ala Val Ala Asp Xaa Arg Asp Arg
 85 90 95
 Ile Cys Glu Arg Glu Ile Arg Arg Gln Arg Gln Xaa Cys Arg Cys Arg
 100 105 110
 Leu Gly Lys Ile Pro Ser Leu Ser Ile Pro Lys Tyr Pro Leu Lys Leu
 115 120 125
 Glu Gln Arg Tyr Gly Lys Glu Asn Ile Thr Ser Ser Thr Val Pro Pro
 130 135 140
 Ser Asn Gly Lys Asn Val Lys Leu Ala Asp Gln Arg His Pro Lys Thr
 145 150 155 160
 Gly Val Pro Phe Asp Gly Lys Gly Phe Pro Asn Phe Glu Lys His Val
 165 170 175
 Lys Tyr Asp Thr Lys Leu Asp Ile Gln Glu Leu Ser Gly Gly Gly Ile
 180 185 190
 Pro Lys Ala Lys Pro Val Phe Asp Ala Lys Pro Arg Trp Glu Val Asp
 195 200 205

Arg Lys Leu Asn Lys Leu Thr Thr Arg Glu Gln Val Glu Lys Asn Val
 210 215 220

Gln Glu Thr Arg Arg Arg Ser Gln Ser Ser Gln Phe Lys Ala His Ala
 225 230 235 240

Gln Arg Glu Trp Glu Asn Lys Thr Gly Leu Asp Phe Asn His Phe Ile
 245 250 255

Gly Gly Asp Ile Asn Lys Lys Gly Ala Val Thr Gly Gly His Ser Leu
 260 265 270

Thr Arg Gly Asp Val Arg Val Ile Gln Gln Thr Ser Ala Pro Asp Lys
 275 280 285

His Gly Val Leu Ser Ser Asp Ser Gly Asn

290

295

<210> 463
 <211> 1887
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (175)..(175)
 <223> N= Unknown

<400> 463

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gccgatgcgg	catacgccaa	atacccgccc	ccttaccatt	cccgaatat	ccgttcaaac	1140
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aaaacgaaaa aaggtgggaa agtcatgacc aagcacacca tgttcccaaa agattgggat 1740
gaggctagaa ttagggctga agttacttcg gcttgggaaa gtagaataat gcttaaggat 1800
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<210> 464
<211> 628
<212> PRT
<213> Neisseria gonorrhoeae

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<220>
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<222> (59)..(59)
<223> Xaa= any amino acid

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Ile Arg Gln Val Leu Asp Arg Gln His Phe Glu Pro Asp Gly Lys Tyr
          35           40           45

His Leu Phe Gly Ser Arg Gly Glu Leu Ala Xaa Arg Asn Gly His Ile
          50           55           60

Gly Leu Gly Asn Ile Gln Ser His Gln Leu Gly His Leu Met Ile Gln
65           70           75           80

Gln Ala Ala Val Glu Gly Asn Ile Gly Tyr Ile Val Arg Phe Ser Asp
          85           90           95

His Gly His Lys Phe His Ser Pro Phe Asp Asn His Ala Ser His Ser
          100          105          110

Asp Ser Asp Glu Ala Gly Ser Pro Val Asp Gly Phe Ser Leu Tyr Arg
          115          120          125

Ile His Trp Asp Gly Tyr Glu His His Pro Ala Asp Gly Tyr Asp Gly
          130          135          140

Pro Gln Gly Gly Gly Tyr Pro Ala Pro Lys Gly Ala Arg Asp Ile Tyr
          145          150          155          160

Ser Tyr Asp Ile Lys Gly Val Ala Gln Asn Ile Arg Leu Asn Leu Thr
          165          170          175

Asp Asn Arg Ser Thr Gly Gln Arg Leu Ala Asp Arg Phe His Asn Ala
          180          185          190

Gly Ala Met Leu Thr Gln Gly Val Gly Asp Gly Phe Lys Arg Ala Thr

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195	200	205
Arg Tyr Ser Pro Glu Leu Asp Arg Ser Gly Asn Ala Ala Glu Ala Phe		
210	215	220
Asn Gly Thr Ala Asp Ile Val Lys Asn Ile Ile Gly Ala Ala Gly Glu		
225	230	235 240
Ile Val Gly Ala Gly Asp Ala Val Gln Gly Ile Ser Glu Gly Ser Asn		
	245	250 255
Ile Ala Val Met His Gly Leu Gly Leu Leu Ser Thr Glu Asn Lys Met		
	260	265 270
Ala Arg Ile Asn Asp Leu Ala Asp Met Ala Gln Leu Lys Asp Tyr Ala		
	275	280 285
Ala Ala Ala Ile Arg Asp Trp Ala Val Gln Asn Pro Asn Ala Ala Gln		
290	295	300
Gly Ile Glu Ala Val Ser Asn Ile Phe Met Ala Ala Ile Pro Ile Lys		
305	310	315 320
Gly Ile Gly Ala Val Arg Gly Lys Tyr Gly Leu Gly Gly Ile Thr Ala		
	325	330 335
His Pro Val Lys Arg Ser Gln Met Gly Ala Ile Ala Leu Pro Lys Gly		
	340	345 350
Lys Ser Ala Val Ser Asp Asn Phe Ala Asp Ala Ala Tyr Ala Lys Tyr		
	355	360 365
Pro Ser Pro Tyr His Ser Arg Asn Ile Arg Ser Asn Leu Glu Gln Arg		
	370	375 380
Tyr Gly Lys Glu Asn Ile Thr Ser Ser Thr Val Pro Pro Ser Asn Gly		
385	390	395 400
Lys Asn Val Lys Leu Ala Asp Gln Arg His Pro Lys Thr Gly Val Pro		
	405	410 415
Phe Asp Gly Lys Gly Phe Pro Asn Phe Glu Lys His Val Lys Tyr Asp		
	420	425 430
Thr Lys Leu Asp Ile Gln Glu Leu Ser Gly Gly Gly Ile Pro Lys Ala		
	435	440 445
Lys Pro Val Phe Asp Ala Lys Pro Arg Trp Glu Val Asp Arg Lys Leu		
	450	455 460
Asn Lys Leu Thr Thr Arg Glu Gln Val Glu Lys Asn Val Gln Glu Thr		
465	470	475 480
Arg Arg Arg Ser Gln Ser Ser Gln Phe Lys Ala His Ala Gln Arg Glu		
	485	490 495

Trp Glu Asn Lys Thr Gly Leu Asp Phe Asn His Phe Ile Gly Gly Asp
500 505 510

Ile Asn Lys Lys Gly Thr Val Thr Gly Gly His Ser Leu Thr Arg Gly
515 520 525

Asp Val Arg Val Ile Gln Gln Thr Ser Ala Pro Asp Lys His Gly Val
530 535 540

Tyr Gln Ala Thr Val Glu Ile Lys Lys Pro Asp Gly Ser Trp Glu Val
545 550 555 560

Lys Thr Lys Lys Gly Gly Lys Val Met Thr Lys His Thr Met Phe Pro
565 570 575

Lys Asp Trp Asp Glu Ala Arg Ile Arg Ala Glu Val Thr Ser Ala Trp
580 585 590

Glu Ser Arg Ile Met Leu Lys Asp Asn Lys Trp Gln Gly Thr Ser Lys
595 600 605

Ser Gly Ile Lys Ile Glu Gly Phe Thr Glu Pro Asn Arg Thr Ala Tyr
610 615 620

Pro Ile Tyr Glu
625

<210> 465
<211> 1671
<212> DNA
<213> Neisseria meningitidis

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catttcgaac ccgacgggaa ataccaccta ttcggcagca ggggggaact tgccgagcgc 180
agcggtcata tcggattggg aaacatacaa agccatcagt tgggcaacct gttcatccag 240
caggcggcca ttaaaggaaa tatcggtac attgtccgct tttccgatca cgggcacgaa 300
gtccattccc ccttcgacaa ccatgcctca cattccgatt ctgatgaagc cggtagtccc 360
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ggctatgacg ggccacaggg cggcggctat cccgctccca aaggcgcgag ggatatatac 480
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gccgaagctt tcaacggcac tgcagatatc gtcaaaaaca tcatcggcgc ggcaggagaa 720
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cacggcttgg gtctgctttc caccgaaaac aagatggcgc gcatcaacga tttggcagat 840
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aatgccgcac aaggcataga agccgtcagc aatatcttta cggcagtcac ccccgtaaaa 960
gggattggag ctgttcgggg aaaatacggc ttgggcggca tcacggcaca tcctgtcaag 1020
cggtcgcaga tgggcgagat cgcattgccg aaagggaat cgcgcgtcag cgacaatttt 1080
gccgatgcgg catacgccaa ataccggtcc ccttaccatt cccgaaatat ccgttcaaac 1140
ttggagcagc gttacggcaa agaaaacatc acctcctcaa ccgtgccgcc gtcaaacgga 1200
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 tatttgata aatttggtaa tgaatggact aaaggtccat caagaactaa aggtcaagaa 1560
 tttgaatggg atgttcaatt gtctaaaaca ggaagagagc aacttggatg ggctagtagg 1620
 gatggtgaagc atttaaatat atcaattgat ggaaagatta cacacaaatg a 1671

<210> 466
 <211> 556
 <212> PRT
 <213> Neisseria meningitidis

<400> 466
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Ile Arg Gln Val Leu Asp Arg Gln His Phe Glu Pro Asp Gly Lys Tyr
 35 40 45

His Leu Phe Gly Ser Arg Gly Glu Leu Ala Glu Arg Ser Gly His Ile
 50 55 60

Gly Leu Gly Asn Ile Gln Ser His Gln Leu Gly Asn Leu Phe Ile Gln
 65 70 75 80

Gln Ala Ala Ile Lys Gly Asn Ile Gly Tyr Ile Val Arg Phe Ser Asp
 85 90 95

His Gly His Glu Val His Ser Pro Phe Asp Asn His Ala Ser His Ser
 100 105 110

Asp Ser Asp Glu Ala Gly Ser Pro Val Asp Gly Phe Ser Leu Tyr Arg
 115 120 125

Ile His Trp Asp Gly Tyr Glu His His Pro Ala Asp Gly Tyr Asp Gly
 130 135 140

Pro Gln Gly Gly Gly Tyr Pro Ala Pro Lys Gly Ala Arg Asp Ile Tyr
 145 150 155 160

Ser Tyr Asp Ile Lys Gly Val Ala Gln Asn Ile Arg Leu Asn Leu Thr
 165 170 175

Asp Asn Arg Ser Thr Gly Gln Arg Leu Val Asp Arg Phe His Asn Thr
 180 185 190

Gly Ser Met Leu Thr Gln Gly Val Gly Asp Gly Phe Lys Arg Ala Thr
 195 200 205

Arg Tyr Ser Pro Glu Leu Asp Arg Ser Gly Asn Ala Ala Glu Ala Phe
 210 215 220

Asn Gly Thr Ala Asp Ile Val Lys Asn Ile Ile Gly Ala Ala Gly Glu
 225 230 235 240
 Ile Val Gly Ala Gly Asp Ala Val Gln Gly Ile Ser Glu Gly Ser Asn
 245 250 255
 Ile Ala Val Met His Gly Leu Gly Leu Leu Ser Thr Glu Asn Lys Met
 260 265 270
 Ala Arg Ile Asn Asp Leu Ala Asp Met Ala Gln Leu Lys Asp Tyr Ala
 275 280 285
 Ala Ala Ala Ile Arg Asp Trp Ala Val Gln Asn Pro Asn Ala Ala Gln
 290 295 300
 Gly Ile Glu Ala Val Ser Asn Ile Phe Thr Ala Val Ile Pro Val Lys
 305 310 315 320
 Gly Ile Gly Ala Val Arg Gly Lys Tyr Gly Leu Gly Gly Ile Thr Ala
 325 330 335
 His Pro Val Lys Arg Ser Gln Met Gly Glu Ile Ala Leu Pro Lys Gly
 340 345 350
 Lys Ser Ala Val Ser Asp Asn Phe Ala Asp Ala Ala Tyr Ala Lys Tyr
 355 360 365
 Pro Ser Pro Tyr His Ser Arg Asn Ile Arg Ser Asn Leu Glu Gln Arg
 370 375 380
 Tyr Gly Lys Glu Asn Ile Thr Ser Ser Thr Val Pro Pro Ser Asn Gly
 385 390 395 400
 Lys Asn Val Lys Leu Ala Asn Lys Arg His Pro Lys Thr Lys Val Pro
 405 410 415
 Phe Asp Gly Lys Gly Phe Pro Asn Phe Glu Lys Asp Val Lys Tyr Asp
 420 425 430
 Thr Arg Ile Asn Thr Ala Val Pro Gln Val Asn Pro Ile Asp Glu Pro
 435 440 445
 Val Phe Asn Pro Lys Gly Ser Val Gly Ser Ala His Ser Trp Ser Ile
 450 455 460
 Thr Ala Arg Ile Gln Tyr Ala Lys Leu Pro Arg Gln Gly Arg Ile Arg
 465 470 475 480
 Tyr Ile Pro Pro Lys Asn Tyr Ser Pro Ser Ala Pro Leu Pro Lys Gly
 485 490 495
 Pro Asn Asn Gly Tyr Leu Asp Lys Phe Gly Asn Glu Trp Thr Lys Gly
 500 505 510
 Pro Ser Arg Thr Lys Gly Gln Glu Phe Glu Trp Asp Val Gln Leu Ser

515 520 525
 Lys Thr Gly Arg Glu Gln Leu Gly Trp Ala Ser Arg Asp Gly Lys His
 530 535 540

 Leu Asn Ile Ser Ile Asp Gly Lys Ile Thr His Lys
 545 550 555

 <210> 467
 <211> 357
 <212> DNA
 <213> Neisseria meningitidis

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 ctgctgctgt cctgctgat actgcttgcc cccaatgogg tgttttgggt ttggcactg 120
 ctgaccgcca ccgcccgcgc gattgtcaat ttggactatc ttcccgcgcg gctgctgac 180
 gccctgcctt ggcgtttcgt caaaattgcc ggcgatttgg cgttttggct ggcggttttg 240
 tttgacgggc tgatgatggt gatccaactc ttccctttta tggatctcat cggcgccatc 300
 aacctcgcc ccttcatact gaccgcccc gccccattatc agataatgac cgggctg 357

 <210> 468

 <211> 119
 <212> PRT
 <213> Neisseria meningitidis

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 Leu Pro Lys Arg Leu Leu Leu Ser Leu Leu Ile Leu Leu Ala Pro Asn
 20 25 30

 Ala Val Phe Trp Val Leu Ala Leu Leu Thr Ala Thr Ala Arg Pro Ile
 35 40 45

 Val Asn Leu Asp Tyr Leu Pro Ala Ala Leu Leu Ile Ala Leu Pro Trp
 50 55 60

 Arg Phe Val Lys Ile Ala Gly Val Leu Ala Phe Trp Leu Ala Val Leu
 65 70 75 80

 Phe Asp Gly Leu Met Met Val Ile Gln Leu Phe Pro Phe Met Asp Leu
 85 90 95

 Ile Gly Ala Ile Asn Leu Val Pro Phe Ile Leu Thr Ala Pro Ala Pro
 100 105 110

 Tyr Gln Ile Met Thr Gly Leu
 115

 <210> 469
 <211> 1419
 <212> DNA
 <213> Neisseria meningitidis

<400> 469

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ctgaccgcca	ccgcccgc	gattgtca	ttggactat	ttcccgcgc	gctgctgat	180
gccctgcctt	ggcggttc	caaaattgc	ggcgatttg	cgttttgg	ggcggtttt	240
tttgacgggc	tgatgatg	gatccaact	ttcccttta	tgga	cggcgcac	300
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cggcacattg	ccgtctgc	cgccgttgt	gcggcagcg	gctatttc	cgccatttg	480
agttactacg	accggggtc	gatggcca	atcttcggc	caaacaact	ctactacgc	540
aaaagtcagg	cgatgctc	caccgtcag	cagaatgc	actttatt	cgccggcct	600
gtcgatcccc	tcttcctcc	cttgggca	caacagcgt	ccgccacgc	tctgaacga	660
ccgaaatctc	aaaaaatc	ctttatcgt	gccgaatct	gggggctgc	ggccaatcc	720
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gcctacggcg	gtttgcgcg	gttcgcact	cgccgcgcg	ccgacgaaa	atttgccgc	900
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ctgttcggcg	aagtgtcgg	atttttcaa	aaacacgac	agggactgt	ttactggat	1140
acgctgacca	gccacgcga	ctatcccg	tccgacatt	tcaaccacag	gctcaa	1200
accgaatatg	gcctgcccgc	cgaaaccgac	ctctgcgcga	atttcagcct	gcacacccaa	1260

ttcttcgacc	aactggcgga	tttgatccaa	cgccccgaaa	tgaaaggcac	ggaagtcac	1320
atcgctggcg	accatccgcc	gcccgtcggc	aacctcaatg	aaaccttccg	ctacctcaaa	1380
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<210> 470

<211> 472

<212> PRT

<213> Neisseria meningitidis

<400> 470

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			20					25					30		
Ala	Val	Phe	Trp	Val	Leu	Ala	Leu	Leu	Thr	Ala	Thr	Ala	Arg	Pro	Ile
		35					40					45			
Val	Asn	Leu	Asp	Tyr	Leu	Pro	Ala	Ala	Leu	Leu	Ile	Ala	Leu	Pro	Trp
	50					55					60				
Arg	Phe	Val	Lys	Ile	Ala	Gly	Val	Leu	Ala	Phe	Trp	Leu	Ala	Val	Leu
65					70					75				80	
Phe	Asp	Gly	Leu	Met	Met	Val	Ile	Gln	Leu	Phe	Pro	Phe	Met	Asp	Leu
			85						90					95	
Ile	Gly	Ala	Ile	Asn	Leu	Val	Pro	Phe	Ile	Leu	Thr	Ala	Pro	Ala	Pro
			100					105					110		
Tyr	Gln	Ile	Met	Thr	Gly	Leu	Leu	Leu	Tyr	Met	Leu	Ala	Met	Pro	

115	120	125
Phe Val Leu Gln Lys Ala	Ala Ala Lys Thr Asp	Phe Arg His Ile Ala
130	135	140
Val Cys Ala Ala Val Val	Ala Ala Ala Gly Tyr Phe	Thr Gly His Leu
145	150	155
Ser Tyr Tyr Asp Arg Gly	Arg Met Ala Asn Ile Phe	Gly Ala Asn Asn
165	170	175
Phe Tyr Tyr Ala Lys Ser	Gln Ala Met Leu Tyr Thr	Val Ser Gln Asn
180	185	190
Ala Asp Phe Ile Thr Ala	Gly Leu Val Asp Pro Val	Phe Leu Pro Leu
195	200	205
Gly Asn Gln Gln Arg Ala	Ala Thr His Leu Asn Glu	Pro Lys Ser Gln
210	215	220
Lys Ile Leu Phe Ile Val	Ala Glu Ser Trp Gly Leu	Pro Ala Asn Pro
225	230	235
Glu Leu Gln Asn Ala Thr	Phe Ala Lys Leu Leu Ala	Gln Lys Asp Arg
245	250	255
Phe Ser Val Trp Glu Ser	Gly Ser Phe Pro Phe Ile	Gly Ala Thr Val
260	265	270
Glu Gly Glu Met Arg Glu	Leu Cys Ala Tyr Gly Gly	Leu Arg Gly Phe
275	280	285
Ala Leu Arg Arg Ala Pro	Asp Glu Lys Phe Ala Arg	Cys Leu Pro Asn
290	295	300
Arg Leu Lys Gln Glu Gly	Tyr Ala Thr Phe Ala Met	His Gly Ala Gly
305	310	315
Ser Ser Leu Tyr Asp Arg	Phe Ser Trp Tyr Pro Arg	Ala Gly Phe Gln
325	330	335
Glu Ile Lys Thr Ala Glu	Asn Leu Ile Gly Lys Lys	Thr Cys Ala Ile
340	345	350
Phe Gly Gly Val Cys Asp	Ser Glu Leu Phe Gly Glu	Val Ser Ala Phe
355	360	365
Phe Lys Lys His Asp Lys	Gly Leu Phe Tyr Trp Met	Thr Leu Thr Ser
370	375	380
His Ala Asp Tyr Pro Glu	Ser Asp Ile Phe Asn His	Arg Leu Lys Cys
385	390	395
Thr Glu Tyr Gly Leu Pro	Ala Glu Thr Asp Leu Cys	Arg Asn Phe Ser
405	410	415

Leu His Thr Gln Phe Phe Asp Gln Leu Ala Asp Leu Ile Gln Arg Pro
420 425 430

Glu Met Lys Gly Thr Glu Val Ile Ile Val Gly Asp His Pro Pro Pro
435 440 445

Val Gly Asn Leu Asn Glu Thr Phe Arg Tyr Leu Lys Gln Gly His Val
450 455 460

Ala Trp Leu Asn Phe Lys Ile Lys
465 470

<210> 471
<211> 1419
<212> DNA
<213> Neisseria meningitidis

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<220>
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<222> (156)..(156)
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<222> (30)..(30)

<223> N= Unknown

<400> 471

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ctgaccgc	ccgccgcg	gattgtca	ttggantac	ttcccgcg	gctgctgat	180
gccctgc	ggcgtntc	caaaattg	ggcgtatt	cgtnntgg	ggcggtttg	240
tttgacgg	tgatgatg	gatecca	ttcccttt	tggatctc	cggcgccat	300
aaacctgc	ccctcatc	gaccgc	gcccttt	agataatg	cgggctgta	360
ctgctgt	tgtggcga	gccgtttg	ttgcagaa	ccgccgca	aaccgact	420
cgacacat	ccgcctgt	cgccgttg	gtggcagc	gctatttt	cggccatt	480
agttant	accggggg	gatggcca	atcttcgg	caaacaac	ctattacg	540
aaaagtc	cgatgctc	caccgtca	cagaatgc	actttatt	cgcgggct	600
gtcgatcc	tcttctcc	cttgggca	caacagcg	ccgccacg	tctgaacg	660
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gaaagcgg	gttttcc	catcggcg	acgatcga	gcgaaatg	cgaactgt	840
gcctacgg	gtttgcgc	gttcgact	cgcgcgcg	ccgacgaa	atttgccc	900
tgctccca	accgtttg	acaagaag	tacgccac	ttgcgatg	cggcgcg	960
agttcgct	acgaccgt	cagctggt	ccgagggc	gctttca	aatcaaac	1020
gccgaaa	tgatcggt	aaaaac	gccatttt	gcggcg	cgacagcg	1080
ctgttcgg	aagtgtcg	antttt	aaacacga	agggact	ttactgg	1140
acgctgac	gccacgcg	ctatcccg	tcngacatt	tcaaccac	gctcaaat	1200
accgaata	gcctgccc	cgaaaccg	ntctgcgc	atttcagc	gcacaccc	1260
ttcttcga	aactggcg	tttgatcc	cgccccga	tgaaaggc	ggaagtc	1320
atcgtcgg	accatccg	gcccgtcg	aacctca	aaaccttc	ctacctca	1380
caggggc	tcgctgg	gaacttca	atcaaata			1419

<210> 472

<211> 472
<212> PRT
<213> Neisseria meningitidis

<220>
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<222> (30)..(30)
<223> Xaa= any amino acid

<220>
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<222> (52)..(52)
<223> Xaa= any amino acid

<220>
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<222> (66)..(66)
<223> Xaa= any amino acid

<220>
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<222> (70)..(70)
<223> Xaa= any amino acid

<220>
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<222> (75)..(75)

<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (107)..(107)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (162)..(162)
<223> Xaa= any amino acid

<220>
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<222> (255)..(255)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (368)..(368)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (411)..(411)
<223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (465)..(465)

<223> Xaa= any amino acid

<400> 472

Met Asn Ile His Thr Leu Leu Ser Lys Gln Trp Thr Leu Pro Pro Phe
1 5 10 15

Leu Pro Lys Arg Leu Leu Leu Ser Leu Leu Ile Leu Leu Xaa Pro Asn
20 25 30

Ala Val Phe Trp Val Leu Ala Leu Leu Thr Ala Thr Ala Arg Pro Ile
35 40 45

Val Asn Leu Xaa Tyr Leu Pro Ala Ala Leu Leu Ile Ala Leu Pro Trp
50 55 60

Arg Xaa Val Lys Ile Xaa Gly Val Leu Ala Xaa Trp Leu Ala Val Leu
65 70 75 80

Phe Asp Gly Leu Met Met Val Ile Gln Leu Phe Pro Phe Met Asp Leu
85 90 95

Ile Gly Ala Ile Asn Leu Val Pro Phe Ile Xaa Thr Ala Pro Ala Leu
100 105 110

Tyr Gln Ile Met Thr Gly Leu Leu Leu Tyr Met Leu Ala Met Pro
115 120 125

Phe Val Leu Gln Lys Ala Ala Ala Lys Thr Asp Phe Arg His Ile Ala
130 135 140

Ala Cys Ala Ala Val Val Val Ala Ala Gly Tyr Phe Thr Gly His Leu
145 150 155 160

Ser Xaa Tyr Asp Arg Gly Arg Met Ala Asn Ile Phe Gly Ala Asn Asn
165 170 175

Phe Tyr Tyr Ala Lys Ser Gln Ala Met Leu Tyr Thr Val Ser Gln Asn
180 185 190

Ala Asp Phe Ile Thr Ala Gly Leu Val Asp Pro Val Phe Leu Pro Leu
195 200 205

Gly Asn Gln Gln Arg Ala Ala Thr His Leu Asn Glu Pro Lys Ser Gln
210 215 220

Lys Ile Leu Phe Ile Val Ala Glu Ser Trp Gly Leu Pro Ala Asn Pro
225 230 235 240

Glu Leu Gln Asn Ala Thr Phe Ala Lys Leu Leu Ala Gln Lys Xaa Arg
245 250 255

Phe Ser Val Trp Glu Ser Gly Ser Phe Pro Phe Ile Gly Ala Thr Ile
260 265 270

Glu Gly Glu Met Arg Glu Leu Cys Ala Tyr Gly Gly Leu Arg Gly Phe
 275 280 285
 Ala Leu Arg Arg Ala Pro Asp Glu Lys Phe Ala Arg Cys Leu Pro Asn
 290 295 300
 Arg Leu Lys Gln Glu Gly Tyr Ala Thr Phe Ala Met His Gly Ala Gly
 305 310 315 320
 Ser Ser Leu Tyr Asp Arg Phe Ser Trp Tyr Pro Arg Ala Gly Phe Gln
 325 330 335
 Glu Ile Lys Thr Ala Glu Asn Leu Ile Gly Lys Lys Thr Cys Ala Ile
 340 345 350
 Phe Gly Gly Val Cys Asp Ser Glu Leu Phe Gly Glu Val Ser Ala Xaa
 355 360 365
 Phe Lys Lys His Asp Lys Gly Leu Phe Tyr Trp Met Thr Leu Thr Ser
 370 375 380
 His Ala Asp Tyr Pro Glu Ser Asp Ile Phe Asn His Arg Leu Lys Cys
 385 390 395 400
 Thr Glu Tyr Gly Leu Pro Ala Glu Thr Asp Xaa Cys Arg Asn Phe Ser
 405 410 415
 Leu His Thr Gln Phe Phe Asp Gln Leu Ala Asp Leu Ile Gln Arg Pro
 420 425 430
 Glu Met Lys Gly Thr Glu Val Ile Ile Val Gly Asp His Pro Pro Pro
 435 440 445
 Val Gly Asn Leu Asn Glu Thr Phe Arg Tyr Leu Lys Gln Gly His Val
 450 455 460
 Xaa Trp Leu Asn Phe Lys Ile Lys
 465 470

<210> 473
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 473
 nnnnnnnn

<210> 474
 <211> 209
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 474

Met Asn Ile His Ala Leu Leu Ser Glu Gln Trp Thr Leu Pro Pro Phe
1 5 10 15

Leu Pro Lys Arg Leu Leu Leu Ser Leu Leu Ile Leu Leu Ala Pro Asn
20 25 30

Ala Val Phe Trp Val Leu Ala Leu Leu Thr Ala Thr Ala Arg Pro Ile
35 40 45

Val Asn Leu Asp Tyr Leu Pro Ala Ala Leu Leu Ile Ala Leu Pro Trp
50 55 60

Arg Phe Val Lys Ile Ala Gly Val Leu Ala Phe Trp Pro Ala Val Leu
65 70 75 80

Phe Asp Gly Leu Met Met Val Ile Gln Leu Phe Pro Phe Met Asp Leu
85 90 95

Ile Gly Ala Ile Asn Leu Val Pro Phe Ile Leu Thr Ala Pro Ala Pro
100 105 110

Tyr Gln Ile Met Thr Gly Leu Leu Leu Leu Tyr Met Leu Ala Met Pro
115 120 125

Phe Val Leu Gln Lys Ala Ala Val Lys Thr Asp Phe Arg His Ile Ala
130 135 140

Val Cys Ala Ala Val Val Ala Ala Ala Arg Tyr Phe Thr Gly Pro Phe

145 150 155 160

Glu Leu Leu Arg Thr Gly Gly Arg Trp Gln Tyr Val Gln His Arg Arg
165 170 175

Leu Leu Leu Ser Gly Ser Arg Ala Ser Phe Arg Arg Arg Gln Lys Ala
180 185 190

Asp Val Leu Arg Arg Leu Gly Asn Pro Tyr Ala Ser Met Gly Asn Gly
195 200 205

Gly

<210> 475

<211> 1419

<212> DNA

<213> Neisseria gonorrhoeae

<400> 475

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ctgctgctgt	ccctgctgat	actgctggcc	cccaatgcgg	tgttttgggt	tttggcactg	120
ctgaccgcca	cgccccgccc	gattgtcaat	ttggactacc	ttcccgcgcg	gctgctgac	180
gccctgcctt	ggcgtttcgt	caaaattgcc	ggcgatttgg	cgttttggcc	ggcggttttg	240
tttgacgggg	tgatgatggt	gatccaactc	ttccctttta	tggacctcat	cggcgccatc	300

aacctcgtcc	ccttcatacct	gaccgcccc	gccccttatac	agataatgac	cgggctgttg	360
ctgctgtata	tgctggcgat	gccgtttgtg	ttgcaaaaag	ccgccgtcaa	aaccgacttc	420
cgacacattg	ccgtctgtgc	cgccgttggtg	gcggcagccg	gctatttcac	cggccatttg	480
agttactacg	accggggggcg	gatggccaat	atcttcggcg	caaacaactt	ctattacgcc	540
aaaagtcagg	cgatgctcta	caccgtcagc	cagaatgccg	actttattac	cgccggcctg	600
gtcgaccccg	tcttcctccc	cttgggcaat	cagcagcgtg	ccgccacgcg	gctgagttag	660
ccgaaatctc	aaaaaatcct	ctttatcgtc	gccgaatctt	gggggctgcc	gggcaatccc	720
gagcttcaaa	acgccacttt	tgccaaactg	ctggcgcaaa	aagaccgttt	ttcggtttgg	780
gaaagcggca	gttttccttt	catcggcgcg	acggtcgaag	gcgaaatgcg	cgaattgtgc	840
gcctacggcg	gtttgcgcgg	gttcgcactg	cgccgcgcgc	ccgacgaaaa	atttgcccgc	900
tgccctcccca	accgtttgaa	acaagaaggt	tacgccacct	ttgcgatgca	cggcgcggggt	960
agttcgcttt	acgaccgctt	cagctgggtat	ccgagggcgg	gctttcaaaa	aatcaaaacc	1020
gccgaaaacc	tgatcggtaa	aaaaacctgc	gccatttttcg	gcggcgtgtg	cgacagcgag	1080
ctgttcggcg	aagtgtcggc	atttttcaaa	aaacacgcaca	agggactgtt	ttactggatg	1140
acgctgacca	gccacgccga	ctatcccga	tccgacattt	tcaaccacag	gctcaaattgc	1200
accgaatacg	gcctgccgcg	cgaaaccgac	ctctgccgca	atttcagcct	gcacacccaa	1260
ttcttcgacc	aactggcgga	tttgatccga	cgccccgaaa	tgaaaggcac	ggaagtcac	1320
atcgtcggcg	accatccgcc	gcccgtcggc	aacctcaatg	aaaccttcg	ctacctcaaa	1380
cagggaacacg	tcgcctgggt	gcacttcaaa	atcaaataa			1419

<210> 476
 <211> 472
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 476
 Met Asn Ile His Ala Leu Leu Ser Glu Gln Trp Thr Leu Pro Pro Phe
 1 5 10 15
 Leu Pro Lys Arg Leu Leu Leu Ser Leu Leu Ile Leu Leu Ala Pro Asn
 20 25 30
 Ala Val Phe Trp Val Leu Ala Leu Leu Thr Ala Thr Ala Arg Pro Ile
 35 40 45
 Val Asn Leu Asp Tyr Leu Pro Ala Ala Leu Leu Ile Ala Leu Pro Trp
 50 55 60
 Arg Phe Val Lys Ile Ala Gly Val Leu Ala Phe Trp Pro Ala Val Leu
 65 70 75 80
 Phe Asp Gly Leu Met Met Val Ile Gln Leu Phe Pro Phe Met Asp Leu
 85 90 95
 Ile Gly Ala Ile Asn Leu Val Pro Phe Ile Leu Thr Ala Pro Ala Pro
 100 105 110
 Tyr Gln Ile Met Thr Gly Leu Leu Leu Tyr Met Leu Ala Met Pro
 115 120 125
 Phe Val Leu Gln Lys Ala Ala Val Lys Thr Asp Phe Arg His Ile Ala
 130 135 140
 Val Cys Ala Ala Val Val Ala Ala Ala Gly Tyr Phe Thr Gly His Leu
 145 150 155 160

Ser Tyr Tyr Asp Arg Gly Arg Met Ala Asn Ile Phe Gly Ala Asn Asn
 165 170 175
 Phe Tyr Tyr Ala Lys Ser Gln Ala Met Leu Tyr Thr Val Ser Gln Asn
 180 185 190
 Ala Asp Phe Ile Thr Ala Gly Leu Val Asp Pro Val Phe Leu Pro Leu
 195 200 205
 Gly Asn Gln Gln Arg Ala Ala Thr Arg Leu Ser Glu Pro Lys Ser Gln
 210 215 220
 Lys Ile Leu Phe Ile Val Ala Glu Ser Trp Gly Leu Pro Gly Asn Pro
 225 230 235 240
 Glu Leu Gln Asn Ala Thr Phe Ala Lys Leu Leu Ala Gln Lys Asp Arg
 245 250 255
 Phe Ser Val Trp Glu Ser Gly Ser Phe Pro Phe Ile Gly Ala Thr Val
 260 265 270
 Glu Gly Glu Met Arg Glu Leu Cys Ala Tyr Gly Gly Leu Arg Gly Phe
 275 280 285
 Ala Leu Arg Arg Ala Pro Asp Glu Lys Phe Ala Arg Cys Leu Pro Asn
 290 295 300
 Arg Leu Lys Gln Glu Gly Tyr Ala Thr Phe Ala Met His Gly Ala Gly
 305 310 315 320
 Ser Ser Leu Tyr Asp Arg Phe Ser Trp Tyr Pro Arg Ala Gly Phe Gln
 325 330 335
 Lys Ile Lys Thr Ala Glu Asn Leu Ile Gly Lys Lys Thr Cys Ala Ile
 340 345 350
 Phe Gly Gly Val Cys Asp Ser Glu Leu Phe Gly Glu Val Ser Ala Phe
 355 360 365
 Phe Lys Lys His Asp Lys Gly Leu Phe Tyr Trp Met Thr Leu Thr Ser
 370 375 380
 His Ala Asp Tyr Pro Glu Ser Asp Ile Phe Asn His Arg Leu Lys Cys
 385 390 395 400
 Thr Glu Tyr Gly Leu Pro Ala Glu Thr Asp Leu Cys Arg Asn Phe Ser
 405 410 415
 Leu His Thr Gln Phe Phe Asp Gln Leu Ala Asp Leu Ile Arg Arg Pro
 420 425 430
 Glu Met Lys Gly Thr Glu Val Ile Ile Val Gly Asp His Pro Pro Pro
 435 440 445
 Val Gly Asn Leu Asn Glu Thr Phe Arg Tyr Leu Lys Gln Gly His Val
 450 455 460

Ala Trp Leu His Phe Lys Ile Lys
465 470

<210> 477
<211> 415
<212> DNA
<213> Neisseria meningitidis

<400> 477
gtgagcggac gttaccgcgc tttggatcgc gtttccaaaa tcatcatcgt tactttgagt 60
atcgccacgc ttgccgccgc cggcatcgcgt atgtcgcgcg gtatgcagat gcagtccgat 120
tttatcgagc cgacaccgtg gacgcttgcc ggtttgggct tcctgatcgc gctgatgggc 180
tggatgcccg cgccgattga aatttcgcc atcaattctt tgtgggtaac cgaaaaacaa 240
cgcacatc cttccgaata ccgcgacggg atttttgaat tcaacgtcgg ttatatcgcc 300
agtgcggtt tggctttggg tttccttgca ctgggcgcgt agcgccgaac ggcaacggcg 360
aacagtgcag atggcgggcg gcaaataaa cgggcaattg atcaatatgt acgcc 415

<210> 478
<211> 139
<212> PRT
<213> Neisseria meningitidis

<220>
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<222> (113)..(113)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (121)..(121)
<223> Xaa= any amino acid

<400> 478
Val Ser Gly Arg Tyr Arg Ala Leu Asp Arg Val Ser Lys Ile Ile Ile
1 5 10 15
Val Thr Leu Ser Ile Ala Thr Leu Ala Ala Ala Gly Ile Ala Met Ser
20 25 30
Arg Gly Met Gln Met Gln Ser Asp Phe Ile Glu Pro Thr Pro Trp Thr
35 40 45
Leu Ala Gly Leu Gly Phe Leu Ile Ala Leu Met Gly Trp Met Pro Ala
50 55 60
Pro Ile Glu Ile Ser Ala Ile Asn Ser Leu Trp Val Thr Glu Lys Gln
65 70 75 80
Arg Ile Asn Pro Ser Glu Tyr Arg Asp Gly Ile Phe Glu Phe Asn Val
85 90 95
Gly Tyr Ile Ala Ser Ala Val Leu Ala Leu Val Phe Leu Ala Leu Gly
100 105 110

Xaa Val Ala Pro Asn Gly Asn Gly Xaa Thr Val Gln Met Ala Gly Gly
 115 120 125

Lys Tyr Asn Gly Gln Leu Ile Asn Met Tyr Ala
 130 135

<210> 479
 <211> 1254
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 479
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 atgatggctt cggcggcggt cggcgggttcg cacctgattg cctcgacgca ggcggggcgcg 120
 ctttacggct ggcagatcgc gctcatcatc atcctgacca acctcttcaa ataccggttt 180
 ttccgcttca gcgcgcatta cacgctggac acgggcaaga gcctgattga aggttatgcc 240
 gagaaaagcc gcgtttattt gtgggtattc ctgattttgt gcaccccttc cgccacgatt 300
 aacgcgggcg cggtcgccat tgtaaccgcc gccatcgta aaatggcgat tccctcgctg 360
 atgtttgatg ccggcacggg tgccgccttg attatggcat cctgcctgat tattttggtg 420
 agcggacggt accgcgcttt ggatcgctt tccaaaatca tcatcgttac tttgagtatc 480
 gccacgcttg ccgccgcgg catcgctatg tcgcgcggta tgcagatgca gtccgatttt 540
 atcgagccga caccgtggac gcttgccggt ttgggcttcc tgatcgcgct gatgggctgg 600
 atgcccgcgc cgattgaaat ttccgccatc aattctttgt gggtaaccga aaaacaacgc 660
 atcaatcctt ccgaataaccg cgacgggatt tttgatttca acgtcggtta tatcgccagt 720
 gcggttttgg ctttggtttt ccttgcactg ggcgcgtttg tgcaatacgg caacggcgaa 780
 gcagtgcaga tggcggggcg caaatatata gggcaattga tcaatatgta cgccgttacc 840
 atcggcggct ggtcgcgccc gctggtggcg tttatcgctg ttgcctgtat gtacggcacg 900
 acgattaccg tcgtggacgg ctatgcccgt gccattgccg aaccgcgtgcg cctgctgcgc 960
 ggaaaagaca aaacgggcaa cgccgaattc tttgcctgga atatttgggt ggcgggcagc 1020
 gggtttggcg tgattttctg gtttgacggc gtaatggcga atctgctcaa atttgcatg 1080
 attgccgctt ttgtgtccgc ccctgtgttt gcctggetga attaccgttt gggttaaagg 1140
 gatgaaaaac acaaactcac atcaggtatg aatgcccttg cattggcagg cttgatttat 1200
 ctgaccggtt ttaccgtttt gttcttattg aatttggcgg gaatgttcaa atga 1254

<210> 480
 <211> 417
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 480
 Met Ser Glu Gln His Ile Ser Thr Trp Lys Ser Lys Ile Asn Ala Leu
 1 5 10 15
 Gly Pro Gly Ile Met Met Ala Ser Ala Ala Val Gly Gly Ser His Leu
 20 25 30
 Ile Ala Ser Thr Gln Ala Gly Ala Leu Tyr Gly Trp Gln Ile Ala Leu
 35 40 45
 Ile Ile Ile Leu Thr Asn Leu Phe Lys Tyr Pro Phe Phe Arg Phe Ser
 50 55 60
 Ala His Tyr Thr Leu Asp Thr Gly Lys Ser Leu Ile Glu Gly Tyr Ala
 65 70 75 80

Glu Lys Ser Arg Val Tyr Leu Trp Val Phe Leu Ile Leu Cys Ile Leu
 85 90 95
 Ser Ala Thr Ile Asn Ala Gly Ala Val Ala Ile Val Thr Ala Ala Ile
 100 105 110
 Val Lys Met Ala Ile Pro Ser Leu Met Phe Asp Ala Gly Thr Val Ala
 115 120 125
 Ala Leu Ile Met Ala Ser Cys Leu Ile Ile Leu Val Ser Gly Arg Tyr
 130 135 140
 Arg Ala Leu Asp Arg Val Ser Lys Ile Ile Ile Val Thr Leu Ser Ile
 145 150 155 160
 Ala Thr Leu Ala Ala Ala Gly Ile Ala Met Ser Arg Gly Met Gln Met
 165 170 175
 Gln Ser Asp Phe Ile Glu Pro Thr Pro Trp Thr Leu Ala Gly Leu Gly
 180 185 190
 Phe Leu Ile Ala Leu Met Gly Trp Met Pro Ala Pro Ile Glu Ile Ser
 195 200 205
 Ala Ile Asn Ser Leu Trp Val Thr Glu Lys Gln Arg Ile Asn Pro Ser
 210 215 220
 Glu Tyr Arg Asp Gly Ile Phe Asp Phe Asn Val Gly Tyr Ile Ala Ser
 225 230 235 240
 Ala Val Leu Ala Leu Val Phe Leu Ala Leu Gly Ala Phe Val Gln Tyr
 245 250 255
 Gly Asn Gly Glu Ala Val Gln Met Ala Gly Gly Lys Tyr Ile Gly Gln
 260 265 270
 Leu Ile Asn Met Tyr Ala Val Thr Ile Gly Gly Trp Ser Arg Pro Leu
 275 280 285
 Val Ala Phe Ile Ala Phe Ala Cys Met Tyr Gly Thr Thr Ile Thr Val
 290 295 300
 Val Asp Gly Tyr Ala Arg Ala Ile Ala Glu Pro Val Arg Leu Leu Arg
 305 310 315 320
 Gly Lys Asp Lys Thr Gly Asn Ala Glu Phe Phe Ala Trp Asn Ile Trp
 325 330 335
 Val Ala Gly Ser Gly Leu Ala Val Ile Phe Trp Phe Asp Gly Val Met
 340 345 350
 Ala Asn Leu Leu Lys Phe Ala Met Ile Ala Ala Phe Val Ser Ala Pro
 355 360 365
 Val Phe Ala Trp Leu Asn Tyr Arg Leu Val Lys Gly Asp Glu Lys His
 370 375 380

Lys Leu Thr Ser Gly Met Asn Ala Leu Ala Leu Ala Gly Leu Ile Tyr
 385 390 395 400

Leu Thr Gly Phe Thr Val Leu Phe Leu Leu Asn Leu Ala Gly Met Phe
 405 410 415

Lys

<210> 481
 <211> 1254
 <212> DNA
 <213> Neisseria meningitidis

<400> 481
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 ctttacggct ggcagatcgc gctcatcatc atcctgacca acctcttcaa ataccggtt 180
 ttccgcttca gcgcgcatta cacgctggac acgggcaaga gcctgattga aggttatgcc 240
 gagaaaagcc gcgtttattt gtgggtattc ctgattttgt gcaccccttc cgccacgatt 300
 aacgcgggcg cggtcgccat tgtaaccgcc gccatcgta aaatggcgat tccctcgtcg 360
 atgtttgatg ccggcacggg tgccgccttg attatggcat cctgcctgat tattttggtg 420
 agcggacgtt accgcgcttt ggatcgcggt tccaaaatca tcatcgttac tttgagtatc 480
 gccacgcttg ccgcgcggcg catcgctatg tcgcgcggta tgcagatgca gtccgatttt 540
 atcgagccga caccgtggac gcttgccggt ttgggcttcc tgatcgcgct gatgggctgg 600
 atgcccgcgc cgattgaaat ttccgccatc aattctttgt gggtaaccga aaaacaacgc 660
 atcaatcctt ccgaataaccg cgacgggatt tttgatttca acgtcggtta tatcgccagt 720
 gcggttttgg ctttggtttt ccttgcaactg ggcgcggttg tgcaatacgg caacggcgaa 780
 gcagtgcaga tggcggggcg caaatatata gggcaattga tcaatatgta cgccgttacc 840
 atcggcggct ggtcgcgccc gctggtggcg tttatcgctg ttgcctgtat gtacggcacg 900
 acgattaccg ttgtggacgg ctatgcccgt gccattgccg aaccgcgtgcg cctgctgcgc 960
 ggaaaagaca aaacgggcaa cgccgaattc tttgcctgga atatttggtt ggcgggcagc 1020
 gggtttggcg tgattttctg gtttgacggc gtaatggcga atctgctcaa atttgcgatg 1080
 attgccgctt ttgtgtccgc cctgtgttt gcctggctga attaccgttt ggtcaaagggt 1140
 gatgaaaaac acaaactcac atcagggtatg aatgcccttg cattggcagg cttgatttat 1200

ctgaccgggtt ttaccgtttt gttcttattg aatttggcgg gaatgttcaa atga 1254

<210> 482
 <211> 417
 <212> PRT
 <213> Neisseria meningitidis

<400> 482
 Met Ser Glu Gln His Ile Ser Thr Trp Lys Ser Lys Ile Asn Ala Leu
 1 5 10 15
 Gly Pro Gly Ile Met Met Ala Ser Ala Ala Val Gly Gly Ser His Leu
 20 25 30
 Ile Ala Ser Thr Gln Ala Gly Ala Leu Tyr Gly Trp Gln Ile Ala Leu
 35 40 45
 Ile Ile Ile Leu Thr Asn Leu Phe Lys Tyr Pro Phe Phe Arg Phe Ser
 50 55 60

Ala His Tyr Thr Leu Asp Thr Gly Lys Ser Leu Ile Glu Gly Tyr Ala
 65 70 75 80
 Glu Lys Ser Arg Val Tyr Leu Trp Val Phe Leu Ile Leu Cys Ile Leu
 85 90 95
 Ser Ala Thr Ile Asn Ala Gly Ala Val Ala Ile Val Thr Ala Ala Ile
 100 105 110
 Val Lys Met Ala Ile Pro Ser Leu Met Phe Asp Ala Gly Thr Val Ala
 115 120 125
 Ala Leu Ile Met Ala Ser Cys Leu Ile Ile Leu Val Ser Gly Arg Tyr
 130 135 140
 Arg Ala Leu Asp Arg Val Ser Lys Ile Ile Ile Val Thr Leu Ser Ile
 145 150 155 160
 Ala Thr Leu Ala Ala Ala Gly Ile Ala Met Ser Arg Gly Met Gln Met
 165 170 175
 Gln Ser Asp Phe Ile Glu Pro Thr Pro Trp Thr Leu Ala Gly Leu Gly
 180 185 190
 Phe Leu Ile Ala Leu Met Gly Trp Met Pro Ala Pro Ile Glu Ile Ser
 195 200 205
 Ala Ile Asn Ser Leu Trp Val Thr Glu Lys Gln Arg Ile Asn Pro Ser
 210 215 220
 Glu Tyr Arg Asp Gly Ile Phe Asp Phe Asn Val Gly Tyr Ile Ala Ser
 225 230 235 240
 Ala Val Leu Ala Leu Val Phe Leu Ala Leu Gly Ala Phe Val Gln Tyr
 245 250 255
 Gly Asn Gly Glu Ala Val Gln Met Ala Gly Gly Lys Tyr Ile Gly Gln
 260 265 270
 Leu Ile Asn Met Tyr Ala Val Thr Ile Gly Gly Trp Ser Arg Pro Leu
 275 280 285
 Val Ala Phe Ile Ala Phe Ala Cys Met Tyr Gly Thr Thr Ile Thr Val
 290 295 300
 Val Asp Gly Tyr Ala Arg Ala Ile Ala Glu Pro Val Arg Leu Leu Arg
 305 310 315 320
 Gly Lys Asp Lys Thr Gly Asn Ala Glu Phe Phe Ala Trp Asn Ile Trp
 325 330 335
 Val Ala Gly Ser Gly Leu Ala Val Ile Phe Trp Phe Asp Gly Val Met
 340 345 350

Ala Asn Leu Leu Lys Phe Ala Met Ile Ala Ala Phe Val Ser Ala Pro
355 360 365
Val Phe Ala Trp Leu Asn Tyr Arg Leu Val Lys Gly Asp Glu Lys His
370 375 380
Lys Leu Thr Ser Gly Met Asn Ala Leu Ala Leu Ala Gly Leu Ile Tyr
385 390 395 400
Leu Thr Gly Phe Thr Val Leu Phe Leu Leu Asn Leu Ala Gly Met Phe
405 410 415

Lys

<210> 483
<211> 8
<212> DNA
<213> Neisseria gonorrhoeae

<220>
<221> misc_feature
<222> (1)..(8)
<223> N= Unknown

<400> 483
nnnnnnnn

8

<210> 484
<211> 269
<212> PRT
<213> Neisseria gonorrhoeae

<400> 484
Met Pro Lys Lys Ser Cys Val Tyr Leu Trp Val Phe Leu Ile Leu Cys
1 5 10 15

Ile Ala Ser Ala Thr Ile Asn Ala Gly Ala Val Ala Ile Val Thr Ala

20 25 30

Ala Ile Val Lys Met Ala Ile Pro Ser Leu Met Phe Asp Ala Gly Thr
35 40 45

Val Ala Ala Leu Ile Met Ala Ser Cys Leu Ile Ile Leu Val Ser Gly
50 55 60

Arg Tyr Arg Ala Leu Asp Arg Val Ser Lys Ile Ile Ile Val Thr Leu
65 70 75 80

Ser Ile Ala Thr Leu Ala Ala Ala Gly Ile Ala Met Ser Arg Gly Met
85 90 95

Gln Met Gln Pro Asp Phe Ile Glu Pro Thr Pro Trp Thr Leu Ala Gly
100 105 110

Leu Gly Phe Leu Ile Ala Leu Met Gly Trp Met Pro Ala Pro Ile Glu
 115 120 125
 Ile Ser Ala Ile Asn Ser Leu Trp Val Thr Glu Lys Gln Arg Ile Asn
 130 135 140
 Pro Ser Glu Tyr Arg Asp Gly Ile Phe Asp Phe Asn Val Gly Tyr Ile
 145 150 155 160
 Ala Ser Ala Val Leu Ala Leu Val Phe Leu Ala Leu Gly Ala Phe Val
 165 170 175
 Gln Tyr Gly Asn Gly Glu Ala Val Gln Met Gly Gly Gly Lys Tyr Ile
 180 185 190
 Gly Gln Leu Ile Asn Met Tyr Ala Val Thr Ile Gly Gly Gly Ser Arg
 195 200 205
 Pro Leu Val Ala Phe Ile Ala Phe Ala Cys Met Tyr Gly Ala Ala Ser
 210 215 220
 Thr Val Val Asp Gly Tyr Ala Arg Ala Ile Ala Glu Pro Val Arg Leu
 225 230 235 240
 Leu Arg Gly Lys Asp Lys Thr Ala Arg Pro Ile Val Leu Leu Glu Lys
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 <212> DNA
 <213> *Neisseria gonorrhoeae*

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<211> 337
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 486

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Val Lys Met Ala Ile Pro Ser Leu Met Phe Asp Ala Gly Thr Val Ala
 35 40 45

Ala Leu Ile Met Ala Ser Cys Leu Ile Ile Leu Val Ser Gly Arg Tyr
 50 55 60

Arg Ala Leu Asp Arg Val Ser Lys Ile Ile Ile Val Thr Leu Ser Ile
 65 70 75 80

Ala Thr Leu Ala Ala Ala Gly Ile Ala Met Ser Arg Gly Met Gln Met
 85 90 95

Gln Pro Asp Phe Ile Glu Pro Thr Pro Trp Thr Leu Ala Gly Leu Gly
 100 105 110

Phe Leu Ile Ala Leu Met Gly Trp Met Pro Ala Pro Ile Glu Ile Ser
 115 120 125

Ala Ile Asn Ser Leu Trp Val Thr Glu Lys Gln Arg Ile Asn Pro Ser
 130 135 140

Glu Tyr Arg Asp Gly Ile Phe Asp Phe Asn Val Gly Tyr Ile Ala Ser
 145 150 155 160

Ala Val Leu Ala Leu Val Phe Leu Ala Leu Gly Ala Phe Val Gln Tyr
 165 170 175

Gly Asn Gly Glu Ala Val Gln Met Ala Gly Gly Lys Tyr Ile Gly Gln
 180 185 190

Leu Ile Asn Met Tyr Ala Val Thr Ile Gly Gly Trp Ser Arg Pro Leu
 195 200 205

Val Ala Phe Ile Ala Phe Ala Cys Met Tyr Gly Thr Thr Ile Thr Val
 210 215 220

Val Asp Gly Tyr Ala Arg Ala Ile Ala Glu Pro Val Arg Leu Leu Arg
 225 230 235 240

Gly Arg Asp Lys Thr Gly Asn Ala Glu Leu Phe Ala Trp Asn Ile Trp
 245 250 255

Val Ala Gly Ser Gly Leu Ala Val Ile Phe Trp Phe Asp Gly Ala Met
 260 265 270

Ala Glu Leu Leu Lys Phe Ala Met Ile Ala Ala Phe Val Ser Ala Pro
275 280 285

Val Phe Ala Trp Leu Asn Tyr Arg Leu Val Lys Gly Asp Lys Arg His
290 295 300

Arg Leu Thr Ala Gly Met Asn Ala Leu Ala Ile Val Gly Leu Leu Tyr
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Leu Ala Gly Phe Ala Val Leu Phe Leu Leu Asn Leu Thr Gly Leu Leu
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<211> 309

<212> DNA

<213> Neisseria meningitidis

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<212> PRT

<213> Neisseria meningitidis

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Trp Met Arg Glu Val Ser Ala Trp Gln Glu Lys Lys Gly Glu Lys Gln

35

40

45

Ala Glu Leu Pro Glu Ile Lys Asp Gly Met Pro Asp Phe Pro Glu Leu
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Ala Leu Met Leu Phe His Ala Val Lys Thr Ala Val Tyr Trp Leu Phe
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Val Gly Val Val Arg Phe Cys Arg Asn Tyr Leu Ala His Glu Ser Glu
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Pro Asp Arg Pro Val Pro Pro
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 <211> 3045
 <212> DNA
 <213> Neisseria meningitidis

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Ser Ala Trp Gln Glu Lys Lys Gly Glu Lys Gln Ala Glu Leu Pro Glu
 35 40 45

Ile Lys Asp Gly Met Pro Asp Phe Pro Glu Leu Ala Leu Met Leu Phe
 50 55 60

His Ala Val Lys Thr Ala Val Tyr Trp Leu Phe Val Gly Val Val Arg
 65 70 75 80

Phe Cys Arg Asn Tyr Leu Ala His Glu Ser Glu Pro Asp Arg Pro Val
 85 90 95

Pro Pro Ala Ser Ala Asn Arg Ala Asp Val Pro Thr Ala Ser Asp Gly
 100 105 110

Tyr Ser Asp Ser Gly Asn Gly Thr Glu Glu Ala Glu Thr Glu Glu Ala
 115 120 125

Glu Ala Ala Glu Glu Glu Ala Ala Asp Thr Glu Asp Ile Ala Thr Ala
 130 135 140

Val Ile Asp Asn Arg Arg Ile Pro Phe Asp Arg Ser Ile Ala Glu Gly
 145 150 155 160

Leu Met Pro Ser Glu Ser Glu Ile Ser Pro Val Arg Pro Val Phe Lys
 165 170 175

Glu Ile Thr Leu Glu Glu Ala Thr Arg Ala Leu Asn Ser Ala Ala Leu

180 185 190

Arg Glu Thr Lys Lys Arg Tyr Ile Asp Ala Phe Glu Lys Asn Glu Thr
 195 200 205

Ala Val Pro Lys Val Arg Val Ser Asp Thr Pro Met Glu Gly Leu Gln
 210 215 220

Ile Ile Gly Leu Asp Asp Pro Val Leu Gln Arg Thr Tyr Ser His Met
 225 230 235 240

Phe Asp Ala Asp Lys Glu Ala Phe Ser Glu Ser Ala Asp Tyr Gly Phe

	245		250		255
Glu Pro Tyr Phe Glu Lys Gln His Pro Ser Ala Phe Ser Ala Val Lys	260		265		270
Ala Glu Asn Ala Arg Asn Ala Pro Phe His Arg His Ala Gly Gln Gly	275		280		285
Lys Gly Gln Ala Glu Ala Lys Ser Pro Asp Val Ser Gln Gly Gln Ser	290		295		300
Val Ser Asp Gly Thr Ala Val Arg Asp Ala Arg Arg Arg Val Ser Val	305		310		315
Asn Leu Lys Glu Pro Asn Lys Ala Thr Val Ser Ala Glu Ala Arg Ile	325		330		335
Ser Arg Leu Ile Pro Glu Ser Gln Thr Val Val Gly Lys Arg Asp Val	340		345		350
Glu Met Pro Ser Glu Thr Glu Asn Val Phe Thr Glu Thr Val Ser Ser	355		360		365
Val Gly Tyr Gly Gly Pro Val Tyr Asp Glu Thr Ala Asp Ile His Ile	370		375		380
Glu Glu Pro Ala Ala Pro Asp Ala Trp Val Val Glu Pro Pro Glu Val	385		390		395
Pro Lys Val Pro Met Thr Ala Ile Asp Ile Gln Pro Pro Pro Pro Val	405		410		415
Ser Glu Ile Tyr Asn Arg Thr Tyr Glu Pro Pro Ser Gly Phe Glu Gln	420		425		430
Val Gln Arg Ser Arg Ile Ala Glu Thr Asp His Leu Ala Asp Asp Val	435		440		445
Leu Asn Gly Gly Trp Gln Glu Glu Thr Ala Ala Ile Ala Asp Asp Gly	450		455		460
Ser Glu Gly Ala Ala Glu Arg Ser Ser Gly Gln Tyr Leu Ser Glu Thr	465		470		475
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Glu Ala Phe Gly His Asp Ser Gln Ala Val Cys Pro Phe Glu Asn Val	485		490		495
Pro Ser Glu Arg Pro Ser Cys Arg Val Ser Asp Thr Glu Ala Asp Glu	500		505		510
Gly Ala Phe Pro Ser Glu Glu Thr Gly Ala Val Ser Glu His Leu Pro	515		520		525
Thr Thr Asp Leu Leu Leu Pro Pro Leu Phe Asn Pro Glu Ala Thr Gln	530		535		540

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 Val Ile Thr Arg Tyr Glu Ile Glu Pro Asp Val Gly Val Arg Gly Asn
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 Ser Val Leu Asn Leu Glu Lys Asp Leu Ala Arg Ser Leu Gly Val Ala
 595 600 605
 Ser Ile Arg Val Val Glu Thr Ile Pro Gly Lys Thr Cys Met Gly Leu
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 Glu Leu Pro Asn Pro Lys Arg Gln Met Ile Arg Leu Ser Glu Ile Phe
 625 630 635 640
 Asn Ser Pro Glu Phe Ala Glu Ser Lys Ser Lys Leu Thr Leu Ala Leu
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 660 665 670
 Pro His Leu Leu Val Ala Gly Thr Thr Gly Ser Gly Lys Ser Val Gly
 675 680 685
 Val Asn Ala Met Ile Leu Ser Met Leu Phe Lys Ala Ala Pro Glu Asp
 690 695 700
 Val Arg Met Ile Met Ile Asp Pro Lys Met Leu Glu Leu Ser Ile Tyr
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 Glu Gly Ile Pro His Leu Leu Ala Pro Val Val Thr Asp Met Lys Leu
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 Ala Ala Asn Ala Leu Asn Trp Cys Val Asn Glu Met Glu Lys Arg Tyr
 740 745 750
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 770 775 780
 Ser Leu Thr Pro Asp Asp Pro Glu Pro Leu Glu Lys Leu Pro Phe Ile
 785 790 795 800
 Val Val Val Val Asp Glu Phe Ala Asp Leu Met Met Thr Ala Gly Lys
 805 810 815
 Lys Ile Glu Glu Leu Ile Ala Arg Leu Ala Gln Lys Ala Arg Ala Ala
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 Gly Ile His Leu Ile Leu Ala Thr Gln Arg Pro Ser Val Asp Val Ile

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	885	890 895
Tyr Pro Gln Arg Val His Gly Ala Phe Ala Ser Asp Glu Glu Val His		
	900	905 910
Arg Val Val Glu Tyr Leu Lys Gln Phe Gly Glu Pro Asp Tyr Val Asp		
	915	920 925
Asp Ile Leu Ser Gly Gly Gly Ser Glu Glu Leu Pro Gly Ile Gly Arg		
	930	935 940
Ser Gly Asp Asp Glu Thr Asp Pro Met Tyr Asp Glu Ala Val Ser Val		
945	950	955 960
Val Leu Lys Thr Arg Lys Ala Ser Ile Ser Gly Val Gln Arg Ala Leu		
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Arg Ile Gly Tyr Asn Arg Ala Ala Arg Leu Ile Asp Gln Met Glu Ala		
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ctgattgccc	gcctcgccca	aaaagcccgc	gcggcaggca	tcacatcttat	ccttgccaca	2520
caacgcccc	gtgtcgatgt	catcacgggt	ctgattaagg	cgaacatccc	gacgcgtatc	2580
gcgttccaag	tgtccagcaa	aatcgacagc	cgcacgattc	ttgaccaa	gggtgcggaa	2640

aacctgctcg	ggcagggcga	tatgctgttc	ctgccgcgcg	gtacggccta	tccgcagcgc	2700
gttcacggcg	cgtttgcctc	ggatgaagag	gtgcacgcgc	tggtcgaata	tctgaaacag	2760
tttggcgaac	cggactatgt	tgacgatatn	ttgagcggcg	gtatgtccga	cgatttgctg	2820
ggaatcagcc	ggagcggcga	cggcgaaacc	gatccgatgt	acgacgaggc	cgtgtcngtt	2880
gttttgaaaa	cgcgcaaagc	cagcatttct	ggcgtgcagc	gcgcattgcg	tatcggctat	2940
aatcgcgccg	cgcgtctgat	tgaccagatg	gaggcggaag	gcattgtgtc	cgcaccggaa	3000
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<210> 492
 <211> 1015
 <212> PRT
 <213> *Neisseria meningitidis*

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<222> (601)..(601)
 <223> Xaa= any amino acid

<220>
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 <223> Xaa= any amino acid

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 <223> Xaa= any amino acid

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 <223> Xaa= any amino acid

<220>
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 <223> Xaa= any amino acid

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 Ser Ala Trp Gln Glu Lys Lys Gly Glu Lys Gln Ala Glu Leu Pro Glu
 35 40 45
 Ile Lys Asp Gly Met Pro Asp Phe Pro Glu Leu Ala Leu Met Leu Phe
 50 55 60
 His Ala Val Lys Thr Ala Val Tyr Trp Leu Phe Val Gly Val Val Arg
 65 70 75 80
 Phe Cys Arg Asn Tyr Leu Ala His Glu Ser Glu Pro Asp Arg Pro Val
 85 90 95
 Pro Pro Ala Ser Ala Asn Arg Ala Asp Val Pro Thr Ala Ser Asp Gly
 100 105 110
 Tyr Ser Asp Ser Gly Asn Gly Thr Glu Glu Ala Glu Thr Glu Glu Ala
 115 120 125
 Glu Ala Ala Glu Glu Glu Ala Ala Asp Thr Glu Asp Ile Ala Thr Ala
 130 135 140
 Val Ile Asp Asn Arg Arg Ile Pro Phe Asp Arg Ser Ile Ala Glu Gly
 145 150 155 160
 Leu Met Pro Ser Glu Ser Glu Ile Ser Pro Val Arg Pro Val Phe Lys
 165 170 175

Glu Ile Thr Leu Glu Glu Ala Thr Arg Ala Leu Asn Ser Ala Ala Leu
 180 185 190
 Arg Glu Thr Lys Lys Arg Tyr Ile Asp Ala Phe Glu Lys Asn Glu Thr
 195 200 205
 Ala Val Pro Lys Val Arg Val Ser Asp Thr Pro Met Glu Gly Leu Gln
 210 215 220
 Ile Ile Gly Leu Asp Asp Pro Val Leu Gln Arg Thr Tyr Ser Arg Met
 225 230 235 240
 Phe Asp Ala Asp Lys Glu Ala Phe Ser Glu Ser Ala Asp Tyr Gly Phe
 245 250 255
 Glu Pro Tyr Phe Glu Lys Gln His Pro Ser Ala Phe Ser Ala Val Lys
 260 265 270
 Ala Glu Asn Ala Arg Asn Ala Pro Phe Arg Arg His Ala Gly Gln Gly
 275 280 285
 Lys Gly Gln Ala Glu Ala Lys Ser Pro Asp Val Ser Gln Gly Gln Ser
 290 295 300
 Val Ser Asp Gly Thr Ala Val Arg Asp Ala Xaa Arg Arg Val Ser Val
 305 310 315 320
 Asn Leu Lys Glu Pro Asn Lys Ala Thr Val Ser Ala Glu Ala Arg Ile
 325 330 335
 Ser Arg Leu Ile Pro Glu Ser Arg Thr Val Val Gly Lys Arg Asp Val
 340 345 350
 Glu Met Pro Ser Glu Thr Glu Asn Val Phe Thr Glu Xaa Val Ser Ser
 355 360 365
 Val Gly Tyr Gly Xaa Pro Val Tyr Asp Glu Thr Ala Asp Ile His Ile
 370 375 380
 Glu Glu Pro Ala Ala Pro Trp Asp Ala Trp Val Val Glu Pro Pro Glu
 385 390 395 400
 Val Pro Lys Val Pro Met Pro Ala Xaa Asp Ile Pro Pro Pro Pro Pro
 405 410 415
 Val Ser Glu Ile Tyr Asn Arg Thr Tyr Glu Pro Pro Ala Gly Phe Glu
 420 425 430
 Gln Val Gln Arg Ser Arg Ile Ala Glu Thr Asp His Leu Ala Asp Asp
 435 440 445
 Val Leu Asn Gly Gly Trp Gln Glu Glu Thr Ala Ala Ile Ala Asn Asp
 450 455 460
 Gly Ser Glu Gly Val Ala Glu Arg Ser Ser Gly Gln Tyr Leu Ser Glu

465		470		475		480
Thr Glu Ala Phe Gly His Asp Ser Gln Ala Val Cys Pro Phe Glu Asn						
	485			490		495
Val Pro Ser Glu Arg Pro Ser Arg Arg Ala Xaa Asp Thr Glu Ala Asp						
	500			505		510
Glu Gly Ala Phe Gln Ser Glu Glu Thr Gly Ala Val Ser Glu His Leu						
	515			520		525
Pro Thr Thr Asp Leu Leu Leu Pro Pro Leu Phe Asn Pro Gly Ala Thr						
	530			535		540
Gln Thr Glu Glu Xaa Leu Leu Xaa Asn Ser Ile Thr Ile Glu Glu Lys						
	545			550		555
Xaa Ala Glu Phe Lys Val Lys Val Lys Val Val Asp Ser Tyr Ser Gly						
	565			570		575
Pro Val Ile Thr Arg Tyr Glu Ile Glu Pro Asp Val Gly Val Arg Gly						
	580			585		590
Asn Ser Val Leu Asn Leu Glu Lys Xaa Leu Ala Arg Ser Leu Gly Val						
	595			600		605
Ala Ser Ile Arg Val Val Glu Thr Ile Leu Gly Lys Thr Cys Met Gly						
	610			615		620
Leu Glu Leu Pro Asn Pro Lys Arg Gln Met Ile Arg Leu Ser Glu Ile						
	625			630		635
Phe Asn Ser Pro Glu Phe Ala Glu Ser Lys Ser Lys Leu Thr Leu Ala						
	645			650		655
Leu Gly Gln Asp Ile Thr Gly Gln Pro Val Val Thr Asp Leu Gly Lys						
	660			665		670
Ala Pro His Leu Leu Val Ala Gly Thr Thr Gly Ser Gly Lys Ser Val						
	675			680		685
Gly Val Asn Ala Met Ile Leu Ser Met Leu Phe Lys Ala Ala Pro Glu						
	690			695		700
Asp Val Arg Met Ile Met Ile Asp Pro Lys Met Leu Glu Leu Ser Ile						
	705			710		715
Tyr Glu Gly Ile Pro His Leu Leu Ala Pro Val Val Thr Asp Met Lys						
	725			730		735
Leu Ala Ala Asn Ala Leu Asn Trp Cys Val Asn Glu Met Glu Lys Arg						
	740			745		750
Tyr Arg Leu Met Ser Phe Met Gly Val Arg Asn Leu Ala Gly Xaa Asn						
	755			760		765

Gln Lys Ile Ala Glu Ala Ala Ala Arg Gly Glu Lys Ile Gly Asn Pro
 770 775 780
 Phe Ser Leu Thr Pro Asp Asn Pro Glu Pro Leu Xaa Lys Leu Pro Phe
 785 790 795 800
 Ile Val Val Val Val Asp Glu Phe Ala Asp Leu Met Met Thr Ala Gly
 805 810 815
 Lys Lys Ile Glu Glu Leu Ile Ala Arg Leu Ala Gln Lys Ala Arg Ala
 820 825 830
 Ala Gly Ile His Leu Ile Leu Ala Thr Gln Arg Pro Ser Val Asp Val
 835 840 845
 Ile Thr Gly Leu Ile Lys Ala Asn Ile Pro Thr Arg Ile Ala Phe Gln
 850 855 860
 Val Ser Ser Lys Ile Asp Ser Arg Thr Ile Leu Asp Gln Met Gly Ala
 865 870 875 880
 Glu Asn Leu Leu Gly Gln Gly Asp Met Leu Phe Leu Pro Pro Gly Thr
 885 890 895
 Ala Tyr Pro Gln Arg Val His Gly Ala Phe Ala Ser Asp Glu Glu Val
 900 905 910
 His Arg Val Val Glu Tyr Leu Lys Gln Phe Gly Glu Pro Asp Tyr Val
 915 920 925
 Asp Asp Xaa Leu Ser Gly Gly Met Ser Asp Asp Leu Leu Gly Ile Ser
 930 935 940
 Arg Ser Gly Asp Gly Glu Thr Asp Pro Met Tyr Asp Glu Ala Val Ser
 945 950 955 960
 Val Val Leu Lys Thr Arg Lys Ala Ser Ile Ser Gly Val Gln Arg Ala
 965 970 975
 Leu Arg Ile Gly Tyr Asn Arg Ala Ala Arg Leu Ile Asp Gln Met Glu
 980 985 990
 Ala Glu Gly Ile Val Ser Ala Pro Glu His Asn Gly Asn Arg Thr Ile
 995 1000 1005
 Leu Val Pro Xaa Asp Asn Ala
 1010 1015

<210> 493
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature

<222> (1)..(8)
<223> N= Unknown

<400> 493
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8

<210> 494
<211> 925
<212> PRT
<213> Neisseria gonorrhoeae

<400> 494
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Val Pro Thr Ala Ser Asp Gly Tyr Ser Asp Ser Gly Asn Gly Thr Glu
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Glu Ala Glu Thr Glu Ala Ala Glu Ala Ala Glu Glu Glu Ala Ala Asp
35 40 45
Thr Glu Asp Ile Ala Thr Ala Val Ile Asp Asn Arg Arg Ile Pro Phe
50 55 60
Asp Arg Ser Ile Ala Glu Gly Leu Met Gln Ser Glu Ser Lys Thr Ser
65 70 75 80
Pro Val Arg Pro Val Phe Lys Glu Ile Thr Leu Glu Glu Ala Thr Arg
85 90 95
Ala Leu Ser Ser Ala Ala Leu Arg Glu Thr Lys Lys Arg Tyr Ile Asp
100 105 110
Ala Phe Glu Lys Asn Gly Thr Ala Val Pro Lys Val Arg Val Ser Asp
115 120 125
Thr Pro Met Glu Gly Leu Gln Ile Ile Gly Leu Asp Asp Pro Val Leu
130 135 140
Gln Arg Thr Tyr Ser Arg Met Phe Asp Ala Asp Lys Glu Ala Phe Ser
145 150 155 160
Glu Ser Ala Asp Tyr Gly Phe Glu Pro Tyr Phe Glu Lys Gln His Pro
165 170 175
Ser Ala Phe Ser Ala Val Lys Ala Glu Asn Ala Arg Asn Ala Pro Phe
180 185 190
Arg Arg His Ala Gly Gln Glu Lys Gly Gln Ala Glu Ala Lys Ser Pro
195 200 205
Asp Val Ser Gln Gly Gln Ser Val Ser Asp Gly Thr Ala Val Arg Asp
210 215 220

Ala Arg Arg Arg Val Ser Val Asn Leu Lys Glu Pro Asn Lys Ala Thr

225		230		235		240
Val Ser Ala Glu	Ala Arg Ile Ser Arg	Leu Ile Pro Glu Ser Arg	Thr			
	245	250	255			
Val Val Gly Lys	Arg Asp Val Glu Met	Pro Ser Glu Thr Glu Asn	Val			
	260	265	270			
Phe Thr Glu Thr	Val Ser Ser Val Gly Tyr Gly Gly	Pro Val Tyr Asp				
	275	280	285			
Glu Ala Ala Asp	Ile His Ile Glu Glu Pro Ala Ala	Pro Asp Ala Trp				
	290	295	300			
Val Val Glu Pro	Pro Glu Val Pro Glu Val Ala Val	Pro Glu Ile Asp				
305	310	315	320			
Ile Leu Pro Pro	Pro Pro Val Ser Glu Ile Tyr Asn Arg	Thr Tyr Glu				
	325	330	335			
Pro Pro Ala Gly	Phe Glu Gln Ala Gln Arg Ser Arg	Ile Ala Glu Thr				
	340	345	350			
Asp His Leu Ala	Ala Asp Val Leu Asn Gly Gly Trp Gln Glu Glu Thr					
	355	360	365			
Ala Ala Ile Ala	Asp Asp Gly Ser Glu Gly Ala Ala Glu Arg Ser Ser					
	370	375	380			
Gly Gln Tyr Leu	Ser Glu Thr Glu Ala Phe Gly His Asp Ser Gln Ala					
385	390	395	400			
Val Cys Pro Phe	Glu Asp Val Pro Ser Glu Arg Pro Ser Cys Arg Val					
	405	410	415			
Ser Asp Thr Glu	Ala Asp Glu Gly Ala Phe Gln Ser Glu Glu Thr Gly					
	420	425	430			
Ala Val Ser Glu	His Leu Pro Thr Thr Asp Leu Leu Leu Pro Pro Leu					
	435	440	445			
Phe Asn Pro Glu	Ala Thr Gln Thr Glu Glu Glu Leu Leu Glu Asn Ser					
	450	455	460			
Ile Thr Ile Glu	Glu Lys Leu Ala Glu Phe Lys Val Lys Val Lys Val					
465	470	475	480			
Val Asp Ser Tyr	Ser Gly Pro Val Ile Thr Arg Tyr Glu Ile Glu Pro					
	485	490	495			
Asp Val Gly Val	Arg Gly Asn Ser Val Leu Asn Leu Glu Lys Asp Leu					
	500	505	510			
Ala Arg Ser Leu	Gly Val Ala Ser Ile Arg Val Val Glu Thr Ile Pro					
	515	520	525			

Gly Lys Thr Cys Met Gly Leu Glu Leu Pro Asn Pro Lys Arg Gln Met
 530 535 540

Ile Arg Leu Ser Glu Ile Phe Asn Ser Pro Glu Phe Ala Glu Ser Lys
 545 550 555 560

Ser Lys Leu Thr Leu Ala Leu Gly Gln Asp Ile Thr Gly Gln Pro Val
 565 570 575

Val Thr Asp Leu Gly Lys Ala Pro His Leu Leu Val Ala Gly Thr Thr
 580 585 590

Gly Ser Gly Lys Ser Val Gly Val Asn Ala Met Ile Leu Ser Met Leu
 595 600 605

Phe Lys Ala Ala Pro Glu Asp Val Arg Met Ile Met Ile Asp Pro Lys
 610 615 620

Met Leu Glu Leu Ser Ile Tyr Glu Gly Ile Thr His Leu Leu Ala Pro
 625 630 635 640

Val Val Thr Asp Met Lys Leu Ala Ala Asn Ala Leu Asn Trp Cys Val
 645 650 655

Asn Glu Met Glu Lys Arg Tyr Arg Leu Met Ser Phe Met Gly Val Arg
 660 665 670

Asn Leu Ala Gly Phe Asn Gln Lys Ile Ala Glu Ala Ala Ala Arg Gly
 675 680 685

Glu Lys Ile Gly Asn Pro Phe Ser Leu Thr Pro Asp Asp Pro Glu Pro
 690 695 700

Leu Glu Lys Leu Pro Phe Ile Val Val Val Val Asp Glu Phe Ala Asp
 705 710 715 720

Leu Met Met Thr Ala Gly Lys Lys Ile Glu Glu Leu Ile Ala Arg Leu
 725 730 735

Ala Gln Lys Ala Arg Ala Ala Gly Ile His Leu Ile Leu Ala Thr Gln
 740 745 750

Arg Pro Ser Val Asp Val Ile Thr Gly Leu Ile Lys Ala Asn Ile Pro
 755 760 765

Thr Arg Ile Ala Phe Gln Val Ser Ser Lys Ile Asp Ser Arg Thr Ile
 770 775 780

Leu Asp Gln Met Gly Ala Glu Asn Leu Leu Gly Gln Gly Asp Met Leu
 785 790 795 800

Phe Leu Pro Pro Gly Thr Ala Tyr Pro Gln Arg Val His Gly Ala Phe
 805 810 815

Ala Ser Asp Glu Glu Val His Arg Val Val Glu Tyr Leu Lys Gln Phe
 820 825 830

Gly Glu Pro Asp Tyr Val Asp Asp Ile Leu Ser Gly Gly Gly Ser Glu
 835 840 845
 Glu Leu Pro Gly Ile Gly Arg Ser Gly Asp Gly Glu Thr Asp Pro Met
 850 855 860
 Tyr Asp Glu Ala Val Ser Val Val Leu Lys Thr Arg Lys Ala Ser Ile
 865 870 875 880
 Ser Gly Val Gln Arg Ala Leu Arg Ile Gly Tyr Asn Arg Ala Ala Arg
 885 890 895
 Leu Ile Asp Gln Met Glu Ala Glu Gly Ile Val Ser Ala Pro Glu His
 900 905 910
 Asn Gly Asn Arg Thr Ile Leu Val Pro Leu Asp Asn Ala
 915 920 925

<210> 495
 <211> 3045
 <212> DNA
 <213> *Neisseria gonorrhoeae*

<400> 495
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 gaaaaacagg cggagctgcc tgaaatcaaa gacggatgc cggattttcc cgagttttcc 180
 ctgatgcttt tccatgccgt caaacaggca gtgtattggc tgtttgctcg tgctgctcgt 240
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 gcaaaccgtg cggatgttcc gaccgcatcc gacgggtatt cagacagtgg aaacgggacg 360
 gaagaagcgg aaacggaagc agcagaagct gcgaggaag aggctgccga tacggaagac 420
 attgcaactg ccgtaatcga caaccgccgc atcccattcg accggagtat tgctgaaggg 480
 ttgatgcagt ctgaaagcaa aacttcgccc gtccgtccgg tttttaagga aatcactttg 540
 gaagaagcaa cgctgtcttt aagcagcgcg gctttaaggg aaacgaaaaa acgctatatc 600
 gatgcatttg agaaaaacgg aacagccgct cccaaagtac gcgtgtccga taccgcgatg 660
 gaagggctgc agattatcgg tttggacgac cctgtgcttc aacgcacgta ttcccgtatg 720
 ttgatgcgg acaaagaagc gttttccgag tctgcggatt acggatttga gccgtatttt 780
 gagaagcagc atccgtctgc cttttctgca gtcaaagccg aaaatgcacg gaatgcgccg 840
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 ttggcgcggt cgctcggcgt ggcttccatc cgcgttgtcg aaaccatccc cggcaaaacc 1860
 tgcattgggt tggaacttcc gaacccgaaa cgccaaatga tacgcctgag cgaaattttc 1920

aattcgcccg	agtttgccga	atccaaatcc	aagctgacgc	tcgcgctcgg	tcaggacatt	1980
accggacagc	ccgtcgtaac	cgacttgggc	aaagcaccgc	atttgctggt	tgccggcacg	2040
accggttcgg	gcaaatacgg	gggtgtcaac	gcgatgattc	tgtctatgct	tttcaaagcc	2100
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gaaggcatca	cgcacctgct	cgccccctgtc	gttaccgata	tgaagctggc	ggcaaacgcg	2220
ctgaactggt	gtgttaacga	aatggaaaaa	cgctaccgcc	tgatgagctt	tatgggcgtg	2280
cgcaatcttg	cgggcttcaa	ccaaaaaatc	gccgaagccg	cagcaagggg	agaaaaaatc	2340
ggcaatccgt	tcagcctcac	gcccgcacgat	cccgaacctt	tggaaaaact	gccgtttatc	2400
gtggtcgtgg	tcgatgagtt	tgccgatttg	atgatgacgg	caggcaagaa	aatcgaagaa	2460
ctgattgcgc	gcctcgccca	aaaagcccgc	gcggcaggca	tccaccttat	ccttgccaca	2520
caacgccccca	gcgtcgatgt	catcacgggt	ctgattaagg	cgaacatccc	gacgcgtatc	2580
gcgttccaag	tgtccagcaa	aatcgacagc	cgcacgattc	tcgaccaa	gggcgcggaa	2640
aacctgctcg	gtcagggcga	tatgctgttc	ctgccgcggg	gtactgccta	tccgcagcgc	2700
gttcacggcg	cgtttgccctc	ggatgaagag	gtgcaccgcg	tggtcgaata	tctgaagcag	2760
tttggcgagc	cggactatgt	tgacgatatt	ttgagcggcg	gcggcagcga	agagctgccc	2820
ggcatcgggc	gcagcggcga	cggcgaaaacc	gatccgatgt	acgacgaggc	cgtatccggt	2880
gtcctgaaaa	gcgcgaaagc	cagcatttcg	ggcgtacagc	gcgccttgcg	catcggctac	2940
aaccgcgccg	cgcgtctgat	tgaccaaata	gaagcggaag	gcatttgtgc	cgcaccggaa	3000
cacaacggca	accgtacgat	tctcgcccc	ttggacaatg	cttga		3045

<210> 496
 <211> 1014
 <212> PRT
 <213> *Neisseria gonorrhoeae*

<400> 496
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 Leu Phe Phe Val Arg Ala Gln Ser Glu Arg Glu Trp Met Arg Glu Val
 20 25 30
 Ser Ala Trp Gln Glu Lys Lys Gly Glu Lys Gln Ala Glu Leu Pro Glu
 35 40 45
 Ile Lys Asp Gly Met Pro Asp Phe Pro Glu Phe Ser Leu Met Leu Phe
 50 55 60
 His Ala Val Lys Thr Ala Val Tyr Trp Leu Phe Val Gly Val Val Arg
 65 70 75 80
 Phe Cys Arg Asn Tyr Leu Ala His Glu Ser Glu Pro Asp Arg Pro Val
 85 90 95
 Pro Pro Ala Ser Ala Asn Arg Ala Asp Val Pro Thr Ala Ser Asp Gly
 100 105 110
 Tyr Ser Asp Ser Gly Asn Gly Thr Glu Glu Ala Glu Thr Glu Ala Ala
 115 120 125
 Glu Ala Ala Glu Glu Glu Ala Ala Asp Thr Glu Asp Ile Ala Thr Ala
 130 135 140
 Val Ile Asp Asn Arg Arg Ile Pro Phe Asp Arg Ser Ile Ala Glu Gly
 145 150 155 160

Leu Met Gln Ser Glu Ser Lys Thr Ser Pro Val Arg Pro Val Phe Lys
 165 170 175
 Glu Ile Thr Leu Glu Glu Ala Thr Arg Ala Leu Ser Ser Ala Ala Leu
 180 185 190
 Arg Glu Thr Lys Lys Arg Tyr Ile Asp Ala Phe Glu Lys Asn Gly Thr
 195 200 205
 Ala Val Pro Lys Val Arg Val Ser Asp Thr Pro Met Glu Gly Leu Gln
 210 215 220
 Ile Ile Gly Leu Asp Asp Pro Val Leu Gln Arg Thr Tyr Ser Arg Met
 225 230 235 240
 Phe Asp Ala Asp Lys Glu Ala Phe Ser Glu Ser Ala Asp Tyr Gly Phe
 245 250 255
 Glu Pro Tyr Phe Glu Lys Gln His Pro Ser Ala Phe Ser Ala Val Lys
 260 265 270
 Ala Glu Asn Ala Arg Asn Ala Pro Phe Arg Arg His Ala Gly Gln Glu
 275 280 285
 Lys Gly Gln Ala Glu Ala Lys Ser Pro Asp Val Ser Gln Gly Gln Ser
 290 295 300
 Val Ser Asp Gly Thr Ala Val Arg Asp Ala Arg Arg Arg Val Ser Val
 305 310 315 320
 Asn Leu Lys Glu Pro Asn Lys Ala Thr Val Ser Ala Glu Ala Arg Ile
 325 330 335
 Ser Arg Leu Ile Pro Glu Ser Arg Thr Val Val Gly Lys Arg Asp Val
 340 345 350
 Glu Met Pro Ser Glu Thr Glu Asn Val Phe Thr Glu Thr Val Ser Ser
 355 360 365
 Val Gly Tyr Gly Gly Pro Val Tyr Asp Glu Ala Ala Asp Ile His Ile
 370 375 380
 Glu Glu Pro Ala Ala Pro Asp Ala Trp Val Val Glu Pro Pro Glu Val
 385 390 395 400
 Pro Glu Val Ala Val Pro Glu Ile Asp Ile Leu Pro Pro Pro Pro Val
 405 410 415
 Ser Glu Ile Tyr Asn Arg Thr Tyr Glu Pro Pro Ala Gly Phe Glu Gln
 420 425 430
 Ala Gln Arg Ser Arg Ile Ala Glu Thr Asp His Leu Ala Ala Asp Val
 435 440 445

Leu Asn Gly Gly Trp Gln Glu Glu Thr Ala Ala Ile Ala Asp Asp Gly
 450 455 460

Ser Glu Gly Ala Ala Glu Arg Ser Ser Gly Gln Tyr Leu Ser Glu Thr
 465 470 475 480

Glu Ala Phe Gly His Asp Ser Gln Ala Val Cys Pro Phe Glu Asp Val
 485 490 495

Pro Ser Glu Arg Pro Ser Cys Arg Val Ser Asp Thr Glu Ala Asp Glu
 500 505 510

Gly Ala Phe Gln Ser Glu Glu Thr Gly Ala Val Ser Glu His Leu Pro
 515 520 525

Thr Thr Asp Leu Leu Leu Pro Pro Leu Phe Asn Pro Glu Ala Thr Gln
 530 535 540

Thr Glu Glu Glu Leu Leu Glu Asn Ser Ile Thr Ile Glu Glu Lys Leu
 545 550 555 560

Ala Glu Phe Lys Val Lys Val Lys Val Val Asp Ser Tyr Ser Gly Pro
 565 570 575

Val Ile Thr Arg Tyr Glu Ile Glu Pro Asp Val Gly Val Arg Gly Asn
 580 585 590

Ser Val Leu Asn Leu Glu Lys Asp Leu Ala Arg Ser Leu Gly Val Ala
 595 600 605

Ser Ile Arg Val Val Glu Thr Ile Pro Gly Lys Thr Cys Met Gly Leu
 610 615 620

Glu Leu Pro Asn Pro Lys Arg Gln Met Ile Arg Leu Ser Glu Ile Phe
 625 630 635 640

Asn Ser Pro Glu Phe Ala Glu Ser Lys Ser Lys Leu Thr Leu Ala Leu
 645 650 655

Gly Gln Asp Ile Thr Gly Gln Pro Val Val Thr Asp Leu Gly Lys Ala
 660 665 670

Pro His Leu Leu Val Ala Gly Thr Thr Gly Ser Gly Lys Ser Val Gly
 675 680 685

Val Asn Ala Met Ile Leu Ser Met Leu Phe Lys Ala Ala Pro Glu Asp
 690 695 700

Val Arg Met Ile Met Ile Asp Pro Lys Met Leu Glu Leu Ser Ile Tyr
 705 710 715 720

Glu Gly Ile Thr His Leu Leu Ala Pro Val Val Thr Asp Met Lys Leu
 725 730 735

Ala Ala Asn Ala Leu Asn Trp Cys Val Asn Glu Met Glu Lys Arg Tyr
 740 745 750

Arg Leu Met Ser Phe Met Gly Val Arg Asn Leu Ala Gly Phe Asn Gln
 755 760 765
 Lys Ile Ala Glu Ala Ala Ala Arg Gly Glu Lys Ile Gly Asn Pro Phe
 770 775 780
 Ser Leu Thr Pro Asp Asp Pro Glu Pro Leu Glu Lys Leu Pro Phe Ile
 785 790 795 800
 Val Val Val Val Asp Glu Phe Ala Asp Leu Met Met Thr Ala Gly Lys
 805 810 815
 Lys Ile Glu Glu Leu Ile Ala Arg Leu Ala Gln Lys Ala Arg Ala Ala
 820 825 830
 Gly Ile His Leu Ile Leu Ala Thr Gln Arg Pro Ser Val Asp Val Ile
 835 840 845
 Thr Gly Leu Ile Lys Ala Asn Ile Pro Thr Arg Ile Ala Phe Gln Val
 850 855 860
 Ser Ser Lys Ile Asp Ser Arg Thr Ile Leu Asp Gln Met Gly Ala Glu
 865 870 875 880
 Asn Leu Leu Gly Gln Gly Asp Met Leu Phe Leu Pro Pro Gly Thr Ala
 885 890 895
 Tyr Pro Gln Arg Val His Gly Ala Phe Ala Ser Asp Glu Glu Val His
 900 905 910
 Arg Val Val Glu Tyr Leu Lys Gln Phe Gly Glu Pro Asp Tyr Val Asp
 915 920 925
 Asp Ile Leu Ser Gly Gly Gly Ser Glu Glu Leu Pro Gly Ile Gly Arg
 930 935 940
 Ser Gly Asp Gly Glu Thr Asp Pro Met Tyr Asp Glu Ala Val Ser Val
 945 950 955 960
 Val Leu Lys Thr Arg Lys Ala Ser Ile Ser Gly Val Gln Arg Ala Leu
 965 970 975
 Arg Ile Gly Tyr Asn Arg Ala Ala Arg Leu Ile Asp Gln Met Glu Ala
 980 985 990
 Glu Gly Ile Val Ser Ala Pro Glu His Asn Gly Asn Arg Thr Ile Leu
 995 1000 1005
 Val Pro Leu Asp Asn Ala
 1010
 <210> 497
 <211> 382
 <212> DNA
 <213> Neisseria meningitidis

<400> 497
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gtcctcttgg cggtattggt ctccacgcag gcaatcaacc tgctcggccg tgccgccgac 120

gggcgtgatc gccatcgatg ccgtgttggc attggtcggc ttctgggtca ttgccatcgg 180
tttgttttta atttaccaaa acgggctgac cctgcttttt gaagccgtgg aagacggcaa 240
aatccatttt tggtcggac tgctgcctat gcacattatc atgtttgtcc ttgcactcat 300
cctgttgccg gtcgcagta tgcccagcca gcccttctgg caggcgggtg gcaaaagtct 360
gacattgaaa ggcggaaaat ga 382

<210> 498
<211> 127
<212> PRT
<213> Neisseria meningitidis

<220>
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<222> (42)..(42)
<223> Xaa= any amino acid

<400> 498
Met Ile Tyr Gln Arg Asn Leu Ile Lys Glu Leu Ser Phe Thr Ala Val
1 5 10 15
Gly Ile Phe Val Val Leu Leu Ala Val Leu Val Ser Thr Gln Ala Ile
20 25 30
Asn Leu Leu Gly Arg Ala Ala Asp Gly Xaa Val Ile Ala Ile Asp Ala
35 40 45
Val Leu Ala Leu Val Gly Phe Trp Val Ile Ala Ile Gly Leu Phe Leu
50 55 60
Ile Tyr Gln Asn Gly Leu Thr Leu Leu Phe Glu Ala Val Glu Asp Gly
65 70 75 80
Lys Ile His Phe Trp Leu Gly Leu Leu Pro Met His Ile Ile Met Phe
85 90 95
Val Leu Ala Leu Ile Leu Leu Arg Val Arg Ser Met Pro Ser Gln Pro
100 105 110
Phe Trp Gln Ala Val Gly Lys Ser Leu Thr Leu Lys Gly Gly Lys
115 120 125

<210> 499
<211> 1116
<212> DNA
<213> Neisseria meningitidis

<400> 499
atgatttatac aaagaaacct catcaaagaa ctctctttta ccgccgtcgg cattttcgtc 60
gtcctcttgg cggtattggt ctccacgcag gcaatcaacc tgctcggccg tgccgccgac 120
gggcgtgtcg ccatcgatgc cgtgttggca ttggtcggct tctgggtcat cggtatgacg 180
ccgcttttgc tgggtgttgac cgcatttatac agtacgttga ccgtgttgac ccgctactgg 240

cgcgacagcg	aaatgtcggt	ctggctatcc	tgcggattgg	cattgaaaca	atggatacgc	300
ccggtgatgc	agtttgccgt	gccgtttgcc	gttttggttg	ccgtcatgca	gctttgggtg	360
ataccgtggg	cagagctacg	cagccgcgaa	tacgtgaaa	tcctgaagca	gaagcaggaa	420
ttgtctttgg	tggaggcagg	cgagttcaac	agtttgggca	agcgcaacgg	cagggtttat	480
tttgtcgaaa	ccttcgatac	cgaatccggc	atcatgaaaa	acctgttcct	gcgcgaacag	540

gacaaaaacg	gcggcgacaa	catcatcttc	gccaaagaag	gtaacttctc	gctgaacgac	600
aacaaacgca	cgctcgaatt	gcgccacggc	taccgttaca	gcggcacgcc	cggacgcgcc	660
gactacaatc	aggtttcctt	ccaaaaactc	aacctgatta	tcagcaccac	gcccaaactc	720
atcgaccccc	tttcccaccg	ccgtaccatt	ccgaccgccc	aactgattgg	cagcagcaac	780
ccgcaacatc	aggcggaatt	gatgtggcgc	atctcgtgca	ccgtcagcgt	cctcctactc	840
tgccctgctt	ccgtgccgct	ttcctatttc	aaccgcgcga	gcggacatac	ctacaatatc	900
ttgattgccca	tccgtttgtt	tttaattttac	caaaacgggc	tgaccctgct	ttttgaagcc	960
gtggaagacg	gcaaaatcca	tttttggttc	ggactgctgc	ctatgcacat	tatcatgttt	1020
gccgttgcaac	tcctcctgtt	gcgcgtccgc	agtatgccca	gccagccctt	ctggcaggcg	1080
gttggcaaaa	gtctgacatt	gaaaggcgga	aatga			1116

<210> 500
 <211> 371
 <212> PRT
 <213> Neisseria meningitidis

<400> 500
 Met Ile Tyr Gln Arg Asn Leu Ile Lys Glu Leu Ser Phe Thr Ala Val
 1 5 10 15
 Gly Ile Phe Val Val Leu Leu Ala Val Leu Val Ser Thr Gln Ala Ile
 20 25 30
 Asn Leu Leu Gly Arg Ala Ala Asp Gly Arg Val Ala Ile Asp Ala Val
 35 40 45
 Leu Ala Leu Val Gly Phe Trp Val Ile Gly Met Thr Pro Leu Leu Leu
 50 55 60
 Val Leu Thr Ala Phe Ile Ser Thr Leu Thr Val Leu Thr Arg Tyr Trp
 65 70 75 80
 Arg Asp Ser Glu Met Ser Val Trp Leu Ser Cys Gly Leu Ala Leu Lys
 85 90 95
 Gln Trp Ile Arg Pro Val Met Gln Phe Ala Val Pro Phe Ala Val Leu
 100 105 110
 Val Ala Val Met Gln Leu Trp Val Ile Pro Trp Ala Glu Leu Arg Ser
 115 120 125
 Arg Glu Tyr Ala Glu Ile Leu Lys Gln Lys Gln Glu Leu Ser Leu Val
 130 135 140
 Glu Ala Gly Glu Phe Asn Ser Leu Gly Lys Arg Asn Gly Arg Val Tyr
 145 150 155 160
 Phe Val Glu Thr Phe Asp Thr Glu Ser Gly Ile Met Lys Asn Leu Phe
 165 170 175

Leu Arg Glu Gln Asp Lys Asn Gly Gly Asp Asn Ile Ile Phe Ala Lys
 180 185 190
 Glu Gly Asn Phe Ser Leu Asn Asp Asn Lys Arg Thr Leu Glu Leu Arg
 195 200 205
 His Gly Tyr Arg Tyr Ser Gly Thr Pro Gly Arg Ala Asp Tyr Asn Gln
 210 215 220
 Val Ser Phe Gln Lys Leu Asn Leu Ile Ile Ser Thr Thr Pro Lys Leu
 225 230 235 240
 Ile Asp Pro Val Ser His Arg Arg Thr Ile Pro Thr Ala Gln Leu Ile
 245 250 255
 Gly Ser Ser Asn Pro Gln His Gln Ala Glu Leu Met Trp Arg Ile Ser
 260 265 270
 Leu Thr Val Ser Val Leu Leu Leu Cys Leu Leu Ala Val Pro Leu Ser
 275 280 285
 Tyr Phe Asn Pro Arg Ser Gly His Thr Tyr Asn Ile Leu Ile Ala Ile
 290 295 300
 Gly Leu Phe Leu Ile Tyr Gln Asn Gly Leu Thr Leu Leu Phe Glu Ala
 305 310 315 320
 Val Glu Asp Gly Lys Ile His Phe Trp Leu Gly Leu Leu Pro Met His
 325 330 335
 Ile Ile Met Phe Ala Val Ala Leu Ile Leu Leu Arg Val Arg Ser Met
 340 345 350
 Pro Ser Gln Pro Phe Trp Gln Ala Val Gly Lys Ser Leu Thr Leu Lys
 355 360 365
 Gly Gly Lys
 370

<210> 501
 <211> 1116
 <212> DNA
 <213> Neisseria meningitidis

<220>
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 <222> (110)..(110)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (121)..(121)
 <223> N= Unknown

<220>

<221> misc_feature
<222> (127)..(127)
<223> N= Unknown

<220>
<221> misc_feature
<222> (169)..(174)

<223> N= Unknown

<220>
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<222> (192)..(192)
<223> N= Unknown

<220>
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<222> (243)..(243)
<223> N= Unknown

<220>
<221> misc_feature
<222> (265)..(265)
<223> N= Unknown

<220>
<221> misc_feature
<222> (571)..(571)
<223> N= Unknown

<220>
<221> misc_feature
<222> (683)..(683)
<223> N= Unknown

<220>
<221> misc_feature
<222> (747)..(747)
<223> N= Unknown

<220>
<221> misc_feature
<222> (750)..(750)
<223> N= Unknown

<220>
<221> misc_feature
<222> (753)..(753)
<223> N= Unknown

<220>
<221> misc_feature
<222> (756)..(756)
<223> N= Unknown

<220>

<221> misc_feature
 <222> (792)..(792)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (905)..(905)
 <223> N= Unknown

<400> 501
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 nggcgnttcg ccatcgatgc cgtggttgga ttggtcggct tctgggtcnn nngnatgacg 180
 ccgcttttgc tngtgttgac cgcattttatc agtacgttga ccgtgttgac ccgctactgg 240
 cngnacagcg aaatgtcggg ctggntatcc tgcggattgg cattgaaaca atggatacgc 300
 ccggtgatgc agtttgccgt gccgtttgccc gttttgggtg ccgtcatgca gctttgggtg 360
 ataccgtggg cagagctacg cagccgcgaa tacgctgaaa tcctgaagca gaagcaggaa 420
 ttgtctttgg tggaggcagg cgggttcaac agtttgggca agcgcaacgg cagggtttat 480
 tttgtcgaaa ctttcgatac cgaatccggc atcatgaaaa acctgttcct gcgcgaacag 540
 gacaaaaacg gcggcgacaa catcatcttc nccaaagaaa gtaacttctc gctgaacgac 600
 aacaaaacgca cgctcgaatt gcgccacggc taccgttaca gcggcacgcc cggacgcgcc 660
 gactacaatc aggtttcctt ccnaaaactc aacctgatta tcagcaccac gcccaaactc 720
 atcgaccccg tttcccaccg ccgtacnatin ccnacngccc aactgattgg cagcagcaac 780
 ccgcaacatc angcggaatt gatgtggcgc atctcgctga ccgtcagcgt cctcctactc 840
 tgcttgcctt ccgtgccgct ttctattttc aaccgcgcga gcggacatac ctacaatatc 900
 ttgantgcca tcggtttggt ttttaatttac caaaacgggc tgacctgct ttttgaagcc 960
 gtggaagacg gcaaaatcca tttttggctc ggactgctgc ctatgcacat catcatgttc 1020
 gtcacgcgaa tcgtacttct gcgcgtccgc agcatgccca gccagccctt ctggcaggcg 1080
 gttggcaaaa gtctgacatt gaaaggcgga aaatga 1116

<210> 502
 <211> 371
 <212> PRT
 <213> Neisseria meningitidis

<220>
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 <222> (37)..(37)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (41)..(41)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (43)..(43)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (57)..(58)
 <223> Xaa= any amino acid

<220>

<221> misc_feature
 <222> (89)..(89)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (191)..(191)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (228)..(228)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (250)..(250)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (264)..(264)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (302)..(302)
 <223> Xaa= any amino acid

<400> 502
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 1 5 10 15
 Gly Ile Phe Val Val Leu Leu Ala Val Leu Val Ser Thr Gln Ala Ile
 20 25 30
 Asn Leu Leu Gly Xaa Ala Ala Asp Xaa Arg Xaa Ala Ile Asp Ala Val
 35 40 45
 Leu Ala Leu Val Gly Phe Trp Val Xaa Xaa Met Thr Pro Leu Leu Leu
 50 55 60
 Val Leu Thr Ala Phe Ile Ser Thr Leu Thr Val Leu Thr Arg Tyr Trp
 65 70 75 80
 Arg Asp Ser Glu Met Ser Val Trp Xaa Ser Cys Gly Leu Ala Leu Lys
 85 90 95
 Gln Trp Ile Arg Pro Val Met Gln Phe Ala Val Pro Phe Ala Val Leu
 100 105 110
 Val Ala Val Met Gln Leu Trp Val Ile Pro Trp Ala Glu Leu Arg Ser
 115 120 125
 Arg Glu Tyr Ala Glu Ile Leu Lys Gln Lys Gln Glu Leu Ser Leu Val

130	135	140
Glu Ala Gly Gly Phe Asn Ser Leu Gly Lys Arg Asn Gly Arg Val Tyr		
145	150	155 160
Phe Val Glu Thr Phe Asp Thr Glu Ser Gly Ile Met Lys Asn Leu Phe		
165	170	175
Leu Arg Glu Gln Asp Lys Asn Gly Gly Asp Asn Ile Ile Phe Xaa Lys		
180	185	190
Glu Ser Asn Phe Ser Leu Asn Asp Asn Lys Arg Thr Leu Glu Leu Arg		
195	200	205
His Gly Tyr Arg Tyr Ser Gly Thr Pro Gly Arg Ala Asp Tyr Asn Gln		
210	215	220
Val Ser Phe Xaa Lys Leu Asn Leu Ile Ile Ser Thr Thr Pro Lys Leu		
225	230	235 240
Ile Asp Pro Val Ser His Arg Arg Thr Xaa Pro Thr Ala Gln Leu Ile		
245	250	255
Gly Ser Ser Asn Pro Gln His Xaa Ala Glu Leu Met Trp Arg Ile Ser		
260	265	270
Leu Thr Val Ser Val Leu Leu Leu Cys Leu Leu Ala Val Pro Leu Ser		
275	280	285
Tyr Phe Asn Pro Arg Ser Gly His Thr Tyr Asn Ile Leu Xaa Ala Ile		
290	295	300
Gly Leu Phe Leu Ile Tyr Gln Asn Gly Leu Thr Leu Leu Phe Glu Ala		
305	310	315 320
Val Glu Asp Gly Lys Ile His Phe Trp Leu Gly Leu Leu Pro Met His		
325	330	335
Ile Ile Met Phe Val Ile Ala Ile Val Leu Leu Arg Val Arg Ser Met		
340	345	350
Pro Ser Gln Pro Phe Trp Gln Ala Val Gly Lys Ser Leu Thr Leu Lys		
355	360	365
Gly Gly Lys		
370		

<210> 503
 <211> 8
 <212> PRT
 <213> Neisseria meningitidis

<400> 503
 Asn Asn Asn Asn Asn Asn Asn
 1 5

<210> 504
 <211> 362
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 504

Met Ile Tyr Gln Arg Asn Leu Ile Lys Glu Leu Ser Phe Thr Ala Val
 1 5 10 15

Gly Ile Phe Val Val Leu Leu Ala Val Leu Val Ser Thr Gln Ala Ile
 20 25 30

Asn Leu Leu Gly Arg Ala Ala Asp Gly Arg Val Ala Ile Asp Ala Val
 35 40 45

Leu Ala Leu Val Gly Phe Trp Val Ile Gly Met Thr Pro Leu Leu Leu
 50 55 60

Val Leu Thr Ala Phe Ile Ser Thr Leu Thr Val Leu Thr Arg Tyr Trp
 65 70 75 80

Arg Asp Ser Glu Met Ser Val Trp Leu Ser Cys Gly Leu Ala Leu Lys
 85 90 95

Gln Trp Ile Arg Pro Val Met Gln Phe Ala Val Pro Phe Ala Ile Leu
 100 105 110

Ile Ala Val Met Gln Leu Trp Val Ile Pro Trp Ala Glu Leu Arg Ser
 115 120 125

Arg Glu Tyr Ala Glu Ile Leu Lys Gln Lys Gln Glu Leu Ser Leu Val
 130 135 140

Glu Ala Gly Glu Phe Asn Asn Leu Gly Lys Arg Asn Gly Arg Val Tyr
 145 150 155 160

Phe Val Glu Thr Phe Asp Thr Glu Ser Gly Ile Met Lys Asn Leu Phe
 165 170 175

Leu Arg Glu Gln Asp Lys Asn Gly Gly Asp Asn Ile Ile Phe Ala Lys
 180 185 190

Glu Gly Asn Phe Ser Leu Lys Asp Asn Lys Arg Thr Leu Glu Leu Arg
 195 200 205

His Gly Tyr Arg Tyr Ser Gly Thr Pro Gly Arg Ala Asp Tyr Asn Gln
 210 215 220

Val Ser Phe Gln Lys Leu Asn Leu Ile Ile Ser Thr Thr Pro Lys Leu
 225 230 235 240

Ile Asp Pro Val Ser His Arg Arg Thr Ile Ser Thr Ala Gln Leu Ile
 245 250 255

Gly Ser Ser Asn Pro Gln His Gln Ala Glu Leu Met Trp Arg Ile Ser
 260 265 270

Leu Thr Val Ser Val Leu Leu Leu Cys Leu Leu Ala Val Pro Leu Ser
 275 280 285

Tyr Phe Asn Pro Arg Ser Gly His Thr Tyr Asn Ile Leu Ile Ala Ile
 290 295 300

Gly Leu Phe Leu Ile Tyr Gln Asn Gly Leu Thr Leu Leu Phe Glu Ala
 305 310 315 320

Val Glu Asp Gly Lys Ile His Phe Trp Leu Gly Leu Leu Pro Met His
 325 330 335

Ile Ile Met Phe Val Ile Ala Ile Val Leu Leu Arg Val Arg Ser Met
 340 345 350

Pro Ser Gln Pro Phe Trp Gln Ala Val Gly
 355 360

<210> 505
 <211> 1116
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 505
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 gggcgtgtcg ccatcgatgc cgtgttggcc ttagtcggct tctgggtcat cggtatgacc 180
 ccgcttttgc tgggtgttgac cgcattcatc agcacgctga ccgtattgac ccgctactgg 240
 cgcgacacgcg aaatgtcgggt ctggctatcc tgcggatttg cgttgaaaca gtggatacgc 300
 cccgtcatgc agtttgccgt gccgtttgcc atcctgattg ccgtcatgca gctttgggtg 360
 ataccgtggg cagagctgcg cagccgcgaa tatgccgaaa ttttgaagca gaagcaggaa 420
 ttgtctttgg tgggaagccgg cgagttcaat aacttgggca agcgcaacgg cagggtttat 480
 ttcgtcgaaa cctttgacac cgaatccggc atcatgaaa acctgttcct gcgcgaacag 540
 gacaaaaacg gcggcgacaa catcatcttc gccaaagaag gtaacttctc gctgaaggac 600
 aacaaacgca cgctcgaatt gcgccacggc taccgttaca gcggcacgcc cggacgcgcc 660
 gactacaatc aggttttcctt ccaaaaaactc aacctgatta tcagcaccac gcccaaaactt 720
 atcgacccccg tttcccaccg ccgcaccatt tgcaccgccc aactgattgg cagcagcaat 780
 ccgcaacatc aggcagaatt gatgtggcgc atctcgctga ccgtcagcgt cctcctgctc 840
 tgcctactcg ccgtgccgct ttcctatttc aaccgcgcga gcggacatac ctacaatatc 900
 ttgattgcca tcggtttgtt tttaatttac caaaacgggc tgaccctgct ttttgaagcc 960
 gtggaagacg gcaaaatcca tttttggctc ggactgtgct ctatgcacat catcatgttc 1020
 gtcacgcgaa tcgtacttct gcgcgtccgc agtatgccc gccagccctt ctggcaggcg 1080
 gttggcaaaa gtctgacatt gaaaggcgga aaatga 1116

<210> 506
 <211> 371
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 506
 Met Ile Tyr Gln Arg Asn Leu Ile Lys Glu Leu Ser Phe Thr Ala Val
 1 5 10 15

Gly Ile Phe Val Val Leu Leu Ala Val Leu Val Ser Thr Gln Ala Ile
 20 25 30

Asn Leu Leu Gly Arg Ala Ala Asp Gly Arg Val Ala Ile Asp Ala Val
 35 40 45
 Leu Ala Leu Val Gly Phe Trp Val Ile Gly Met Thr Pro Leu Leu Leu
 50 55 60
 Val Leu Thr Ala Phe Ile Ser Thr Leu Thr Val Leu Thr Arg Tyr Trp
 65 70 75 80
 Arg Asp Ser Glu Met Ser Val Trp Leu Ser Cys Gly Leu Ala Leu Lys
 85 90 95
 Gln Trp Ile Arg Pro Val Met Gln Phe Ala Val Pro Phe Ala Ile Leu
 100 105 110
 Ile Ala Val Met Gln Leu Trp Val Ile Pro Trp Ala Glu Leu Arg Ser
 115 120 125
 Arg Glu Tyr Ala Glu Ile Leu Lys Gln Lys Gln Glu Leu Ser Leu Val
 130 135 140
 Glu Ala Gly Glu Phe Asn Asn Leu Gly Lys Arg Asn Gly Arg Val Tyr
 145 150 155 160
 Phe Val Glu Thr Phe Asp Thr Glu Ser Gly Ile Met Lys Asn Leu Phe
 165 170 175
 Leu Arg Glu Gln Asp Lys Asn Gly Gly Asp Asn Ile Ile Phe Ala Lys
 180 185 190
 Glu Gly Asn Phe Ser Leu Lys Asp Asn Lys Arg Thr Leu Glu Leu Arg
 195 200 205
 His Gly Tyr Arg Tyr Ser Gly Thr Pro Gly Arg Ala Asp Tyr Asn Gln
 210 215 220
 Val Ser Phe Gln Lys Leu Asn Leu Ile Ile Ser Thr Thr Pro Lys Leu
 225 230 235 240
 Ile Asp Pro Val Ser His Arg Arg Thr Ile Ser Thr Ala Gln Leu Ile
 245 250 255
 Gly Ser Ser Asn Pro Gln His Gln Ala Glu Leu Met Trp Arg Ile Ser
 260 265 270
 Leu Thr Val Ser Val Leu Leu Leu Cys Leu Leu Ala Val Pro Leu Ser
 275 280 285
 Tyr Phe Asn Pro Arg Ser Gly His Thr Tyr Asn Ile Leu Ile Ala Ile
 290 295 300
 Gly Leu Phe Leu Ile Tyr Gln Asn Gly Leu Thr Leu Leu Phe Glu Ala
 305 310 315 320

Val Glu Asp Gly Lys Ile His Phe Trp Leu Gly Leu Leu Pro Met His
325 330 335

Ile Ile Met Phe Val Ile Ala Ile Val Leu Leu Arg Val Arg Ser Met
340 345 350

Pro Ser Gln Pro Phe Trp Gln Ala Val Gly Lys Ser Leu Thr Leu Lys
355 360 365

Gly Gly Lys
370

<210> 507
<211> 407

<212> DNA
<213> *Neisseria meningitidis*

<400> 507
ggtggtggtt ttatcaatgc ttctgtgcc actttgacga cagccaaacc gcaatatcaa 60
gcaggagacc ttagcgcttt taagataagg caaggcaatg ttgtaatcgc cggacacggt 120
ttggatgcac gtgataccga ttacacacgt attctcagtt atcattccaa aatcgatgca 180
cccgtatggg gacaagatgt tcgtgtcgtc gcgggacaaa acgatgtggc cgcaacaggt 240
gatgcacatt cgcctattct caataatgct gctgccataa cgtcaaacia tacagccaac 300
aacggcacac atatcccttt atttgcgatt gatacaggca aattaggagg tatgtatgcc 360
aacaaaatca ccttgatcag tacggtcgag caagcaggca ttcgtaa 407

<210> 508
<211> 135
<212> PRT
<213> *Neisseria meningitidis*

<220>
<221> misc_feature
<222> (118)..(118)
<223> Xaa= any amino acid

<400> 508
Gly Gly Gly Phe Ile Asn Ala Ser Cys Ala Thr Leu Thr Thr Ala Lys
1 5 10 15

Pro Gln Tyr Gln Ala Gly Asp Leu Ser Ala Phe Lys Ile Arg Gln Gly
20 25 30

Asn Val Val Ile Ala Gly His Gly Leu Asp Ala Arg Asp Thr Asp Tyr
35 40 45

Thr Arg Ile Leu Ser Tyr His Ser Lys Ile Asp Ala Pro Val Trp Gly
50 55 60

Gln Asp Val Arg Val Val Ala Gly Gln Asn Asp Val Ala Ala Thr Gly
65 70 75 80

Asp Ala His Ser Pro Ile Leu Asn Asn Ala Ala Ala Asn Thr Ser Asn
85 90 95

Asn Thr Ala Asn Asn Gly Thr His Ile Pro Leu Phe Ala Ile Asp Thr
 100 105 110

Gly Lys Leu Gly Gly Xaa Val Cys Gln Gln Asn His Leu Asp Gln Tyr
 115 120 125

Gly Arg Ala Ser Arg His Ser
 130 135

<210> 509
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>

<221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 509
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8

<210> 510
 <211> 263
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 510
 Met Asn Lys Thr Leu Tyr Arg Val Ile Phe Asn Arg Lys Arg Gly Ala
 1 5 10 15

Val Val Ala Val Ala Glu Thr Thr Lys Arg Glu Gly Lys Ser Cys Ala
 20 25 30

Asp Ser Gly Ser Gly Ser Val Tyr Val Lys Ser Val Ser Phe Ile Pro
 35 40 45

Thr His Ser Lys Ala Phe Cys Phe Ser Ala Leu Gly Phe Ser Leu Cys
 50 55 60

Leu Ala Leu Gly Thr Val Asn Ile Ala Phe Ala Asp Gly Ile Ile Thr
 65 70 75 80

Asp Lys Ala Ala Pro Lys Thr Gln Gln Ala Thr Ile Leu Gln Thr Gly
 85 90 95

Asn Gly Ile Pro Gln Val Asn Ile Gln Thr Pro Thr Ser Ala Gly Val
 100 105 110

Ser Val Asn Gln Tyr Ala Gln Phe Asp Val Gly Asn Arg Gly Ala Ile
 115 120 125

Leu Asn Asn Ser Arg Ser Asn Thr Gln Thr Gln Leu Gly Gly Trp Ile
 130 135 140

Gln Gly Asn Pro Trp Leu Thr Arg Gly Glu Ala Arg Val Val Val Asn
 145 150 155 160

Gln Ile Asn Ser Ser His Pro Ser Gln Leu Asn Gly Tyr Ile Glu Val
 165 170 175

Gly Gly Arg Arg Ala Glu Val Val Ile Ala Asn Pro Ala Gly Ile Ala
 180 185 190

Val Asn Gly Gly Gly Phe Ile Asn Ala Ser Arg Ala Thr Leu Thr Thr
 195 200 205

Gly Gln Pro Gln Tyr Gln Ala Gly Asp Phe Ser Gly Phe Lys Ile Arg
 210 215 220

Gln Gly Asn Ala Val Ile Ala Gly His Gly Leu Asp Ala Arg Asp Thr

225 230 235 240

Asp Phe Thr Arg Ile Leu Val Cys Gln Gln Asn His Leu Asp Gln Tyr
 245 250 255

Gly Arg Thr Ser Arg His Ser
 260

<210> 511

<211> 976

<212> DNA

<213> Neisseria meningitidis

<400> 511

tcaacgggac	atagcgaaca	aaattacact	ttgccgcgag	aaatcacacg	caacatttca	60
ctgggttcat	ttgcctatga	atcgcatcgc	aaagcattaa	gccatcatgc	gccagccaa	120
ggcactgagt	tgccgcaaag	caacggtatt	tcgctaccct	atacgtccaa	ttcttttacc	180
ccattaccga	gcagcagctt	atacattatc	aatcctgtca	ataaaggcta	tcttggtgaa	240
accgatccac	gctttgccaa	ctaccgtcaa	tggttggtga	gtgactatat	gctggacagc	300
ctcaaactag	acccaaacaa	tttacataaa	cgtttggtg	atggttatta	cgagcaacgt	360
ttaatcaatg	aacaaatcgc	agagctgaca	gggcatcgtc	gtttagacgg	ttatcaaaac	420
gacgaagaac	aatttaaagc	cttaatggat	aatggcgcga	ctgcggcacg	ttcgatgaat	480
ctcagcggtg	gcattgcatt	aagtgccgag	caagtagcgc	aactgaccag	cgatattggt	540
tggttggtac	aaaaagaagt	taagcttcct	gatggcggca	cacaaaccgt	attggtgcca	600
cagggtttatg	tacgcgttaa	aaatggcgac	atagacggta	aaggtgcatt	gttgtcaggc	660
agcaatacac	aatcaatgt	ttcaggcagc	ctgaaaaact	caggcacgat	tgcagggcgc	720
aatgcgctta	ttatcaatac	cgatacgcta	gacaatatcg	gtgggcgtat	tcatgcgcaa	780
aaatcagcgg	ttacggccac	acaagacatc	aataatattg	gcggcatgct	ttctgccgaa	840
cagacattat	tgctcaacgc	aggcaacaac	atcaacagcc	aaagcaccac	cgccagcagt	900
caaaatacac	aaggcagcag	cacctaccta	gaccgaatgg	cagggtattta	tatcacaggc	960
aaagaaaaag	gtgttt					976

<210> 512

<211> 325

<212> PRT

<213> Neisseria meningitidis

<400> 512

Ser Thr Gly His Ser Glu Gln Asn Tyr Thr Leu Pro Arg Glu Ile Thr

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Arg Asn Ile Ser Leu Gly Ser Phe Ala Tyr Glu Ser His Arg Lys Ala	20	25	30
Leu Ser His His Ala Pro Ser Gln Gly Thr Glu Leu Pro Gln Ser Asn	35	40	45
Gly Ile Ser Leu Pro Tyr Thr Ser Asn Ser Phe Thr Pro Leu Pro Ser	50	55	60
Ser Ser Leu Tyr Ile Ile Asn Pro Val Asn Lys Gly Tyr Leu Val Glu	65	70	75
Thr Asp Pro Arg Phe Ala Asn Tyr Arg Gln Trp Leu Gly Ser Asp Tyr	85	90	95
Met Leu Asp Ser Leu Lys Leu Asp Pro Asn Asn Leu His Lys Arg Leu	100	105	110
Gly Asp Gly Tyr Tyr Glu Gln Arg Leu Ile Asn Glu Gln Ile Ala Glu	115	120	125
Leu Thr Gly His Arg Arg Leu Asp Gly Tyr Gln Asn Asp Glu Glu Gln	130	135	140
Phe Lys Ala Leu Met Asp Asn Gly Ala Thr Ala Ala Arg Ser Met Asn	145	150	155
Leu Ser Val Gly Ile Ala Leu Ser Ala Glu Gln Val Ala Gln Leu Thr	165	170	175
Ser Asp Ile Val Trp Leu Val Gln Lys Glu Val Lys Leu Pro Asp Gly	180	185	190
Gly Thr Gln Thr Val Leu Val Pro Gln Val Tyr Val Arg Val Lys Asn	195	200	205
Gly Asp Ile Asp Gly Lys Gly Ala Leu Leu Ser Gly Ser Asn Thr Gln	210	215	220
Ile Asn Val Ser Gly Ser Leu Lys Asn Ser Gly Thr Ile Ala Gly Arg	225	230	235
Asn Ala Leu Ile Ile Asn Thr Asp Thr Leu Asp Asn Ile Gly Gly Arg	245	250	255
Ile His Ala Gln Lys Ser Ala Val Thr Ala Thr Gln Asp Ile Asn Asn	260	265	270
Ile Gly Gly Met Leu Ser Ala Glu Gln Thr Leu Leu Leu Asn Ala Gly	275	280	285
Asn Asn Ile Asn Ser Gln Ser Thr Thr Ala Ser Ser Gln Asn Thr Gln	290	295	300

Gly Ser Ser Thr Tyr Leu Asp Arg Met Ala Gly Ile Tyr Ile Thr Gly
 305 310 315 320

Lys Glu Lys Gly Val
 325

<210> 513
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
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 <222> (1)..(8)
 <223> N= Unknown

<400> 513

nnnnnnnn

8

<210> 514
 <211> 721
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 514

Met Leu Val Gln Thr Glu Lys Asp Gly Leu His Asn Glu Gln Thr Phe
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Gly Glu Lys Lys Val Phe Ser Glu Asn Gly Lys Leu His Asn Tyr Trp
 20 25 30

Arg Ala Arg Arg Lys Gly His Asp Glu Thr Gly His Arg Glu Gln Asn
 35 40 45

Tyr Thr Leu Pro Glu Glu Ile Thr Arg Asp Ile Ser Leu Gly Ser Phe
 50 55 60

Ala Tyr Glu Ser His Ser Lys Ala Leu Ser Arg His Ala Pro Ser Gln
 65 70 75 80

Gly Thr Glu Leu Pro Gln Ser Asn Arg Asp Asn Ile Arg Thr Ala Lys
 85 90 95

Ser Asn Gly Ile Ser Leu Pro Tyr Thr Pro Asn Ser Phe Thr Pro Leu
 100 105 110

Pro Gly Ser Ser Leu Tyr Ile Ile Asn Pro Ala Asn Lys Gly Tyr Leu
 115 120 125

Val Glu Thr Asp Pro Arg Phe Ala Asn Tyr Arg Gln Trp Leu Gly Ser
 130 135 140

Asp Tyr Met Leu Gly Ser Leu Lys Leu Asp Pro Asn Asn Leu His Lys
 145 150 155 160

Arg Leu Gly Asp Gly Tyr Tyr Glu Gln Arg Leu Ile Asn Glu Gln Ile
 165 170 175
 Ala Glu Leu Thr Gly His Arg Arg Leu Asp Gly Tyr Gln Asn Asp Glu
 180 185 190
 Glu Gln Phe Lys Ala Leu Met Asp Asn Gly Ala Thr Ala Ala Arg Ser
 195 200 205
 Met Asn Leu Ser Val Gly Ile Ala Leu Ser Ala Glu Gln Ala Ala Gln
 210 215 220
 Leu Thr Ser Asp Ile Val Trp Leu Val Gln Lys Glu Val Lys Leu Pro
 225 230 235 240
 Asp Gly Gly Thr Gln Thr Val Leu Met Pro Gln Val Tyr Val Arg Val
 245 250 255
 Lys Asn Gly Gly Ile Asp Gly Lys Gly Ala Leu Leu Ser Gly Ser Asn
 260 265 270
 Thr Gln Ile Asn Val Ser Gly Ser Leu Lys Asn Ser Gly Thr Ile Ala
 275 280 285
 Gly Arg Asn Ala Leu Ile Ile Asn Thr Asp Thr Leu Asp Asn Ile Gly
 290 295 300
 Gly Arg Ile His Ala Gln Lys Ser Ala Val Thr Ala Thr Gln Asp Ile
 305 310 315 320
 Asn Asn Ile Gly Gly Ile Leu Ser Ala Glu Gln Thr Leu Leu Leu Asn
 325 330 335
 Ala Gly Asn Asn Ile Asn Asn Gln Ser Thr Ala Lys Ser Ser Gln Asn
 340 345 350
 Ala Gln Gly Ser Ser Thr Tyr Leu Asp Arg Met Ala Gly Ile Tyr Ile
 355 360 365
 Thr Gly Lys Glu Lys Gly Val Leu Ala Ala Gln Ala Gly Lys Asp Ile
 370 375 380
 Asn Ile Ile Ala Gly Gln Ile Ser Asn Gln Ser Asp Gln Gly Gln Thr
 385 390 395 400
 Arg Leu Gln Ala Gly Arg Asp Ile Asn Leu Asp Thr Val Gln Thr Gly
 405 410 415
 Lys Tyr Gln Glu Ile His Phe Asp Ala Asp Asn His Thr Ile Arg Gly
 420 425 430
 Ser Thr Asn Glu Val Gly Ser Ser Ile Gln Thr Lys Gly Asp Val Thr
 435 440 445

Leu Leu Ser Gly Asn Asn Leu Asn Ala Lys Ala Ala Glu Val Gly Ser
 450 455 460
 Ala Lys Gly Thr Leu Ala Val Tyr Ala Lys Asn Asp Ile Thr Ile Ser
 465 470 475 480
 Ser Gly Ile His Ala Gly Gln Val Asp Asp Ala Ser Lys His Thr Gly
 485 490 495
 Arg Ser Gly Gly Gly Asn Lys Leu Val Ile Thr Asp Lys Ala Gln Ser
 500 505 510
 His His Glu Thr Ala Gln Ser Ser Thr Phe Glu Gly Lys Gln Val Val
 515 520 525
 Leu Gln Ala Gly Asn Asp Ala Asn Ile Leu Gly Ser Asn Val Ile Ser
 530 535 540
 Asp Asn Gly Thr Arg Ile Gln Ala Gly Asn His Val Arg Ile Gly Thr
 545 550 555 560
 Thr Gln Thr Gln Ser Gln Ser Glu Thr Tyr His Gln Thr Gln Lys Ser
 565 570 575
 Gly Leu Met Ser Ala Gly Ile Gly Phe Thr Ile Gly Ser Lys Thr Asn
 580 585 590
 Thr Gln Glu Asn Gln Ser Gln Ser Asn Glu His Thr Gly Ser Thr Val
 595 600 605
 Gly Ser Leu Lys Gly Asp Thr Thr Ile Val Ala Ser Lys His Tyr Glu
 610 615 620
 Gln Thr Gly Ser Asn Val Ser Ser Pro Glu Gly Asn Asn Leu Ile Ser
 625 630 635 640
 Thr Gln Ser Met Asp Ile Gly Ala Ala Gln Asn Gln Leu Asn Ser Lys
 645 650 655
 Thr Thr Gln Thr Tyr Glu Gln Lys Gly Leu Thr Val Ala Phe Ser Ser
 660 665 670
 Pro Val Thr Asp Leu Ala Gln Gln Ala Ile Ala Val Ala His Lys Ala
 675 680 685
 Ala Lys Gln Phe Asp Lys Ala Lys Thr Thr Ala Leu Met Pro Trp Arg
 690 695 700
 Leu Pro Met Gln Val Gly Arg Leu Phe Lys Gln Ala Lys Ala Pro Lys
 705 710 715 720
 Lys

<210> 515
 <211> 2166

<212> DNA

<213> Neisseria gonorrhoeae

<400> 515

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gtcttcagcg	aaaatggtaa	gttgacacaac	tactggcggtg	cgcgtcgtaa	aggacatgat	120
gaaacagggc	atcgtgaaca	aaattatact	ttgccggagg	aatcacacg	cgacatttca	180
ctgggttcat	ttgcctatga	atcgcatagc	aaagcattaa	gccgtcatgc	gcccagccaa	240
ggcactgagt	tgccacaaaag	taaccgggat	aatatccgta	ctgcgaaaag	caacggtatt	300
tcgctaccct	atagcccaa	ttcttttacc	ccattacccg	gcagcagctt	atacattatc	360
aatcctgcca	ataaaggcta	tcttggtgaa	accgatccac	gctttgccaa	ctaccgtcaa	420
tggttgggta	gtgactatat	gctgggcagc	ctcaaactag	acccaaacaa	tttacataaa	480
cgtttgggtg	atggttatta	cgagcaacgt	ttaatcaatg	aacaaatcgc	agagctgaca	540
gggcatcgtc	gtttagacgg	ttatcaaaac	gacgaagaac	aatttaaagc	cttaatggat	600
aatggcgcga	ctgcggcacg	ttcgatgaat	ctcagcgttg	gcattgcatt	aagtgcgcag	660
caagcagcgc	aactgaccag	cgatattgtt	tggttgggtac	aaaaagaagt	taaacttcct	720
gatggcggca	cacaaaccgt	attgatgcca	caggtttatg	tacgcgttaa	aaatggcggc	780
atagacggta	aaggtgcatt	gttgtcaggc	agcaatacac	aaatcaatgt	ttcaggcagc	840
ctgaaaaact	caggcacgat	tgcaggcgcg	aatgcgctta	ttatcaatac	cgatacgcta	900
gacaatatcg	gtgggcgtat	tcatgcgcaa	aaatcagcgg	ttacggccac	acaagacatc	960
aataatatgt	gcggcattct	ttctgccgaa	cagacattat	tgctcaatgc	gggtaacaac	1020

atcaacaacc	aaagcacggc	caagagcagt	caaaatgcac	aaggtagcag	cacctaccta	1080
gaccgaatgg	caggtattta	tatcacaggc	aaagaaaaag	gtgttttagc	agcgcaggca	1140
ggcaaagaca	tcaacatcat	tgccgggtcaa	atcagcaatc	aatcagatca	agggcaaacc	1200
cggtctgcagg	caggacgcga	cattaacctg	gatacggtac	aaaccggcaa	atatcaagaa	1260
atccattttg	atgccgataa	ccataccatc	cgaggttcaa	cgaacgaagt	cggcagcagc	1320
attcaaacaa	aaggcgatgt	taccctattg	tcagggaata	atctcaatgc	caaagctgcc	1380
gaagtcggca	gcgcaaaagg	cacacttgcc	gtgtatgcta	aaaatgacat	tactatcagc	1440
tcaggcatcc	atgccggcca	agttgatgat	gcgtccaaac	atacaggcag	aagcggcggc	1500
ggtaataaat	tagtcattac	cgataaagcc	caaagtcatc	acgaaactgc	tcaaagcagc	1560
acctttgaag	gcaagcaagt	tgtattgcag	gcaggaaacg	atgccaacat	ccttggcagt	1620
aatgttattt	ccgataatgg	caccgggatt	caagcaggca	atcatgttcg	cattgggtaca	1680
acccaaactc	aaagccaaag	cgaaacctat	catcaaacc	aaaaatcagg	attgatgagt	1740
gcaggatatc	gcttcaactat	tggcagcaag	acaaacacac	aagaaaacca	atcccaaagc	1800
aacgaacata	caggcagtac	cgtaggcagc	ctgaaaggcg	ataccaccat	tggttgaagc	1860
aaacactacg	aacaaaccgg	cagcaacggt	tccagccctg	agggcaacaa	ccttatcagc	1920
acgcaaagta	tggatattgg	cgcagcacaa	aaccaattaa	acagcaaaac	cacccaaacc	1980
tacgaacaaa	aaggcttaac	ggtggcattc	agttcgcccg	ttaccgattt	ggcacaacaa	2040
gcgattgccg	tagcacacaa	agcagcaaac	aagtcggaca	aagcaaaaac	gaccgcgtta	2100
atgccatggc	ggctgccaat	gcaggttggc	aggcctatca	aacaggcaaa	ggcgcacaaa	2160
acttag						2166

<210> 516

<211> 721

<212> PRT

<213> Neisseria gonorrhoeae

<400> 516

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Gly	Glu	Lys	Lys	Val	Phe	Ser	Glu	Asn	Gly	Lys	Leu	His	Asn	Tyr	Trp
			20					25					30		

Arg Ala Arg Arg Lys Gly His Asp Glu Thr Gly His Arg Glu Gln Asn

35					40					45					
Tyr	Thr	Leu	Pro	Glu	Glu	Ile	Thr	Arg	Asp	Ile	Ser	Leu	Gly	Ser	Phe
50						55					60				
Ala	Tyr	Glu	Ser	His	Ser	Lys	Ala	Leu	Ser	Arg	His	Ala	Pro	Ser	Gln
65					70					75					80
Gly	Thr	Glu	Leu	Pro	Gln	Ser	Asn	Arg	Asp	Asn	Ile	Arg	Thr	Ala	Lys
				85					90					95	
Ser	Asn	Gly	Ile	Ser	Leu	Pro	Tyr	Thr	Pro	Asn	Ser	Phe	Thr	Pro	Leu
			100					105					110		
Pro	Gly	Ser	Ser	Leu	Tyr	Ile	Ile	Asn	Pro	Ala	Asn	Lys	Gly	Tyr	Leu
	115					120						125			
Val	Glu	Thr	Asp	Pro	Arg	Phe	Ala	Asn	Tyr	Arg	Gln	Trp	Leu	Gly	Ser
	130					135					140				
Asp	Tyr	Met	Leu	Gly	Ser	Leu	Lys	Leu	Asp	Pro	Asn	Asn	Leu	His	Lys
145					150					155					160
Arg	Leu	Gly	Asp	Gly	Tyr	Tyr	Glu	Gln	Arg	Leu	Ile	Asn	Glu	Gln	Ile
				165					170					175	
Ala	Glu	Leu	Thr	Gly	His	Arg	Arg	Leu	Asp	Gly	Tyr	Gln	Asn	Asp	Glu
			180					185					190		
Glu	Gln	Phe	Lys	Ala	Leu	Met	Asp	Asn	Gly	Ala	Thr	Ala	Ala	Arg	Ser
	195						200					205			
Met	Asn	Leu	Ser	Val	Gly	Ile	Ala	Leu	Ser	Ala	Glu	Gln	Ala	Ala	Gln
	210					215					220				
Leu	Thr	Ser	Asp	Ile	Val	Trp	Leu	Val	Gln	Lys	Glu	Val	Lys	Leu	Pro
225					230					235					240
Asp	Gly	Gly	Thr	Gln	Thr	Val	Leu	Met	Pro	Gln	Val	Tyr	Val	Arg	Val
				245					250					255	
Lys	Asn	Gly	Gly	Ile	Asp	Gly	Lys	Gly	Ala	Leu	Leu	Ser	Gly	Ser	Asn
		260						265					270		
Thr	Gln	Ile	Asn	Val	Ser	Gly	Ser	Leu	Lys	Asn	Ser	Gly	Thr	Ile	Ala
		275					280					285			
Gly	Arg	Asn	Ala	Leu	Ile	Ile	Asn	Thr	Asp	Thr	Leu	Asp	Asn	Ile	Gly
	290					295					300				
Gly	Arg	Ile	His	Ala	Gln	Lys	Ser	Ala	Val	Thr	Ala	Thr	Gln	Asp	Ile
305					310					315					320
Asn	Asn	Ile	Gly	Gly	Ile	Leu	Ser	Ala	Glu	Gln	Thr	Leu	Leu	Leu	Asn
				325					330					335	

Ala Gly Asn Asn Ile Asn Asn Gln Ser Thr Ala Lys Ser Ser Gln Asn
 340 345 350
 Ala Gln Gly Ser Ser Thr Tyr Leu Asp Arg Met Ala Gly Ile Tyr Ile
 355 360 365
 Thr Gly Lys Glu Lys Gly Val Leu Ala Ala Gln Ala Gly Lys Asp Ile
 370 375 380
 Asn Ile Ile Ala Gly Gln Ile Ser Asn Gln Ser Asp Gln Gly Gln Thr
 385 390 395 400
 Arg Leu Gln Ala Gly Arg Asp Ile Asn Leu Asp Thr Val Gln Thr Gly
 405 410 415
 Lys Tyr Gln Glu Ile His Phe Asp Ala Asp Asn His Thr Ile Arg Gly
 420 425 430
 Ser Thr Asn Glu Val Gly Ser Ser Ile Gln Thr Lys Gly Asp Val Thr
 435 440 445
 Leu Leu Ser Gly Asn Asn Leu Asn Ala Lys Ala Ala Glu Val Gly Ser
 450 455 460
 Ala Lys Gly Thr Leu Ala Val Tyr Ala Lys Asn Asp Ile Thr Ile Ser
 465 470 475 480
 Ser Gly Ile His Ala Gly Gln Val Asp Asp Ala Ser Lys His Thr Gly
 485 490 495
 Arg Ser Gly Gly Gly Asn Lys Leu Val Ile Thr Asp Lys Ala Gln Ser
 500 505 510
 His His Glu Thr Ala Gln Ser Ser Thr Phe Glu Gly Lys Gln Val Val
 515 520 525
 Leu Gln Ala Gly Asn Asp Ala Asn Ile Leu Gly Ser Asn Val Ile Ser
 530 535 540
 Asp Asn Gly Thr Arg Ile Gln Ala Gly Asn His Val Arg Ile Gly Thr
 545 550 555 560
 Thr Gln Thr Gln Ser Gln Ser Glu Thr Tyr His Gln Thr Gln Lys Ser
 565 570 575
 Gly Leu Met Ser Ala Gly Ile Gly Phe Thr Ile Gly Ser Lys Thr Asn
 580 585 590
 Thr Gln Glu Asn Gln Ser Gln Ser Asn Glu His Thr Gly Ser Thr Val
 595 600 605
 Gly Ser Leu Lys Gly Asp Thr Thr Ile Val Ala Ser Lys His Tyr Glu
 610 615 620
 Gln Thr Gly Ser Asn Val Ser Ser Pro Glu Gly Asn Asn Leu Ile Ser
 625 630 635 640

Thr Gln Ser Met Asp Ile Gly Ala Ala Gln Asn Gln Leu Asn Ser Lys
645 650 655

Thr Thr Gln Thr Tyr Glu Gln Lys Gly Leu Thr Val Ala Phe Ser Ser
660 665 670

Pro Val Thr Asp Leu Ala Gln Gln Ala Ile Ala Val Ala His Lys Ala
675 680 685

Ala Asn Lys Ser Asp Lys Ala Lys Thr Thr Ala Leu Met Pro Trp Arg
690 695 700

Leu Pro Met Gln Val Gly Arg Pro Ile Lys Gln Ala Lys Ala His Lys
705 710 715 720

Thr

<210> 517
<211> 689
<212> DNA
<213> Neisseria meningitidis

<400> 517
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gtgtctgcca ataatgacat caacatcagc gcaggcatca acacgaccca tgttgatgat 120
gcgtccaaac acacaggcag aagcgggtgtt ggcaataaat tagtcattac cgataaagcc 180
caaagtcatc acgaaaccgc ccaaagcagc acctttgaag gcaagcaagt tgtattgcag 240
gcaggaaaacg atgccaacat ccttggcagc aatgttattt ccgataatgg caccagatt 300
caagcaggca atcatgttcg catttgtaca acccaaactc aaagccaaag cgaaacctat 360
catcaaacc agaaatcagg attgatgagt gcaggatcgc gcttcactat tggcagcaag 420
acaaacacac aagaaaacca atcccaaagc aacgaacata caggcagtac cgtaggcagc 480
ttgaaaggcg ataccacatc tgggtgcaggc aaacactacg aacaaatcgg cagtaccgtt 540
tccagcccgg aaggcaacaa taccatctat gcccaaagca tagacattca agcggcacac 600
aacaatttaa acagtaatac cacccaaacc tatgaacaaa aaggctaacg gtggcattca 660
gttcgcccgt taccgatttg gcacaacaa 689

<210> 518
<211> 230
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (215)..(215)
<223> Xaa= any amino acid

<400> 518
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Gly Thr Leu Ala Val Ser Ala Asn Asn Asp Ile Asn Ile Ser Ala Gly
20 25 30

Ile Asn Thr Thr His Val Asp Asp Ala Ser Lys His Thr Gly Arg Ser
 35 40 45
 Gly Gly Gly Asn Lys Leu Val Ile Thr Asp Lys Ala Gln Ser His His
 50 55 60
 Glu Thr Ala Gln Ser Ser Thr Phe Glu Gly Lys Gln Val Val Leu Gln
 65 70 75 80
 Ala Gly Asn Asp Ala Asn Ile Leu Gly Ser Asn Val Ile Ser Asp Asn
 85 90 95
 Gly Thr Gln Ile Gln Ala Gly Asn His Val Arg Ile Gly Thr Thr Gln
 100 105 110
 Thr Gln Ser Gln Ser Glu Thr Tyr His Gln Thr Gln Lys Ser Gly Leu
 115 120 125
 Met Ser Ala Gly Ile Gly Phe Thr Ile Gly Ser Lys Thr Asn Thr Gln
 130 135 140
 Glu Asn Gln Ser Gln Ser Asn Glu His Thr Gly Ser Thr Val Gly Ser
 145 150 155 160
 Leu Lys Gly Asp Thr Thr Ile Val Ala Gly Lys His Tyr Glu Gln Ile
 165 170 175
 Gly Ser Thr Val Ser Ser Pro Glu Gly Asn Asn Thr Ile Tyr Ala Gln
 180 185 190
 Ser Ile Asp Ile Gln Ala Ala His Asn Lys Leu Asn Ser Asn Thr Thr
 195 200 205
 Gln Thr Tyr Glu Gln Lys Xaa Leu Thr Val Ala Phe Ser Ser Pro Val
 210 215 220
 Thr Asp Leu Ala Gln Gln
 225 230

<210> 519
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 519
 nnnnnnnn

<210> 520
 <211> 721
 <212> PRT

<213> Neisseria gonorrhoeae

<400> 520

Leu Leu Val Gln Thr Glu Lys Asp Gly Leu His Asn Glu Gln Thr Phe
1 5 10 15

Gly Glu Lys Lys Val Phe Ser Glu Asn Gly Lys Leu His Asn Tyr Trp
20 25 30

Arg Ala Arg Arg Lys Gly His Asp Glu Thr Gly His Arg Glu Gln Asn
35 40 45

Tyr Thr Leu Pro Glu Glu Ile Thr Arg Asp Ile Ser Leu Gly Ser Phe
50 55 60

Ala Tyr Glu Ser His Ser Lys Ala Leu Ser Arg His Ala Pro Ser Gln
65 70 75 80

Gly Thr Glu Leu Pro Gln Ser Asn Arg Asp Asn Ile Arg Thr Ala Lys
85 90 95

Ser Asn Gly Ile Ser Leu Pro Tyr Thr Pro Asn Ser Phe Thr Pro Leu
100 105 110

Pro Gly Ser Ser Leu Tyr Ile Ile Asn Pro Ala Asn Lys Gly Tyr Leu
115 120 125

Val Glu Thr Asp Pro Arg Phe Ala Asn Tyr Arg Gln Trp Leu Gly Ser
130 135 140

Asp Tyr Met Leu Gly Ser Leu Lys Leu Asp Pro Asn Asn Leu His Lys
145 150 155 160

Arg Leu Gly Asp Gly Tyr Tyr Glu Gln Arg Leu Ile Asn Glu Gln Ile
165 170 175

Ala Glu Leu Thr Gly His Arg Arg Leu Asp Gly Tyr Gln Asn Asp Glu
180 185 190

Glu Gln Phe Lys Ala Leu Met Asp Asn Gly Ala Thr Ala Ala Arg Ser
195 200 205

Met Asn Leu Ser Val Gly Ile Ala Leu Ser Ala Glu Gln Ala Ala Gln
210 215 220

Leu Thr Ser Asp Ile Val Trp Leu Val Gln Lys Glu Val Lys Leu Pro
225 230 235 240

Asp Gly Gly Thr Gln Thr Val Leu Met Pro Gln Val Tyr Val Arg Val
245 250 255

Lys Asn Gly Gly Ile Asp Gly Lys Gly Ala Leu Leu Ser Gly Ser Asn
260 265 270

Thr Gln Ile Asn Val Ser Gly Ser Leu Lys Asn Ser Gly Thr Ile Ala
275 280 285

Gly Arg Asn Ala Leu Ile Ile Asn Thr Asp Thr Leu Asp Asn Ile Gly
 290 295 300
 Gly Arg Ile His Ala Gln Lys Ser Ala Val Thr Ala Thr Gln Asp Ile
 305 310 315 320
 Asn Asn Ile Gly Gly Ile Leu Ser Ala Glu Gln Thr Leu Leu Leu Asn
 325 330 335
 Ala Gly Asn Asn Ile Asn Asn Gln Ser Thr Ala Lys Ser Ser Gln Asn
 340 345 350
 Ala Gln Gly Ser Ser Thr Tyr Leu Asp Arg Met Ala Gly Ile Tyr Ile
 355 360 365
 Thr Gly Lys Glu Lys Gly Val Leu Ala Ala Gln Ala Gly Lys Asp Ile
 370 375 380
 Asn Ile Ile Ala Gly Gln Ile Ser Asn Gln Ser Asp Gln Gly Gln Thr
 385 390 395 400
 Arg Leu Gln Ala Gly Arg Asp Ile Asn Leu Asp Thr Val Gln Thr Gly
 405 410 415
 Lys Tyr Gln Glu Ile His Phe Asp Ala Asp Asn His Thr Ile Arg Gly
 420 425 430
 Ser Thr Asn Glu Val Gly Ser Ser Ile Gln Thr Lys Gly Asp Val Thr
 435 440 445
 Leu Leu Ser Gly Asn Asn Leu Asn Ala Lys Ala Ala Glu Val Gly Ser
 450 455 460
 Ala Lys Gly Thr Leu Ala Val Tyr Ala Lys Asn Asp Ile Thr Ile Ser
 465 470 475 480
 Ser Gly Ile His Ala Gly Gln Val Asp Asp Ala Ser Lys His Thr Gly
 485 490 495
 Arg Ser Gly Gly Gly Asn Lys Leu Val Ile Thr Asp Lys Ala Gln Ser
 500 505 510
 His His Glu Thr Ala Gln Ser Ser Thr Phe Glu Gly Lys Gln Val Val
 515 520 525
 Leu Gln Ala Gly Asn Asp Ala Asn Ile Leu Gly Ser Asn Val Ile Ser
 530 535 540
 Asp Asn Gly Thr Arg Ile Gln Ala Gly Asn His Val Arg Ile Gly Thr
 545 550 555 560
 Thr Gln Thr Gln Ser Gln Ser Glu Thr Tyr His Gln Thr Gln Lys Ser
 565 570 575
 Gly Leu Met Ser Ala Gly Ile Gly Phe Thr Ile Gly Ser Lys Thr Asn

580	585	590
Thr Gln Glu Asn Gln Ser Gln Ser Asn Glu His Thr Gly Ser Thr Val		
595	600	605
Gly Ser Leu Lys Gly Asp Thr Thr Ile Val Ala Ser Lys His Tyr Glu		
610	615	620
Gln Thr Gly Ser Asn Val Ser Ser Pro Glu Gly Asn Asn Leu Ile Ser		
625	630	635
Thr Gln Ser Met Asp Ile Gly Ala Ala Gln Asn Gln Leu Asn Ser Lys		
645	650	655
Thr Thr Gln Thr Tyr Glu Gln Lys Gly Leu Thr Val Ala Phe Ser Ser		
660	665	670
Pro Val Thr Asp Leu Ala Gln Gln Ala Ile Ala Val Ala His Lys Ala		
675	680	685
Ala Lys Gln Phe Asp Lys Ala Lys Thr Thr Ala Leu Met Pro Trp Arg		
690	695	700
Leu Pro Met Gln Val Gly Arg Leu Phe Lys Gln Ala Lys Ala Pro Lys		
705	710	715
		720

Lys

<210> 521
 <211> 2166
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 521

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gaaacagggc	atcgtgaaca	aaattatact	ttgccggagg	aaatcacacg	cgacatttca	180
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ggcactgagt	tgccacaaaag	taaccgggat	aatatccgta	ctgcgaaaag	caacggtatt	300
tcgctaccct	atacgcccaa	ttcttttacc	ccattaccgg	gcagcagctt	atacattatc	360
aatcctgcca	ataaaggcta	tcttggtgaa	accgatccac	gctttgccaa	ctaccgtcaa	420
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cgtttggggtg	atgggttatta	cgagcaacgt	ttaatcaatg	aacaaatcgc	agagctgaca	540
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aatggcgcg	ctgcggcagc	ttcgatgaat	ctcagcggtg	gcattgcatt	aagtgccgag	660
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ctgaaaaact	caggcacgat	tgccggcggc	aatgcgctta	ttatcaatac	cgatacgcta	900
gacaatatcg	gtgggcgtat	tcatgcgcaa	aaatcagcgg	ttacggccac	acaagacatc	960
aataatattg	gcggcattct	ttctgccgaa	cagacattat	tgctcaatgc	gggtaacaac	1020
atcaacaacc	aaagcacggc	caagagcagt	caaatgcac	aaggtagcag	cacctaccta	1080
gaccgaatgg	caggatatta	tatcacaggc	aaagaaaaag	gtgttttagc	agcgcaggca	1140
ggcaaagaca	tcaacatcat	tgccgggtcaa	atcagcaatc	aatcagatca	agggcaaac	1200
cggctgcagg	caggacgcga	cattaacctg	gatacgggtac	aaaccggcaa	atatcaagaa	1260

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gaagtcggca	gcgcaaaagg	cacacttgcc	gtgtatgcta	aaaatgacat	tactatcagc	1440
tcaggcatcc	atgccggcca	agttgatgat	gcgtccaaac	atacaggcag	aagcggcggc	1500
ggtaataaat	tagtcattac	cgataaagcc	caaagtcatc	acgaaactgc	tcaaagcagc	1560
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aacgaacata	caggcagtac	cgtaggcagc	ctgaaaggcg	ataccaccat	tggtgcaagc	1860
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acgcaaagta	tggatattgg	cgcagcacia	aaccaattaa	acagcaaaac	cacccaaacc	1980
tacgaacaaa	aaggcttaac	ggtggcattc	agttcgcccg	ttaccgattt	ggcacaacaa	2040
gcgattgccg	tagcacacaa	agcagcaaac	aagtcggaca	aagcaaaaac	gaccgcgtta	2100
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acttag						2166

<210> 522

<211> 721

<212> PRT

<213> Neisseria gonorrhoeae

<400> 522

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Gly	Glu	Lys	Lys	Val	Phe	Ser	Glu	Asn	Gly	Lys	Leu	His	Asn	Tyr	Trp
		20						25					30		

Arg	Ala	Arg	Arg	Lys	Gly	His	Asp	Glu	Thr	Gly	His	Arg	Glu	Gln	Asn
	35						40					45			

Tyr	Thr	Leu	Pro	Glu	Glu	Ile	Thr	Arg	Asp	Ile	Ser	Leu	Gly	Ser	Phe
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Ala	Tyr	Glu	Ser	His	Ser	Lys	Ala	Leu	Ser	Arg	His	Ala	Pro	Ser	Gln
65					70					75					80

Gly	Thr	Glu	Leu	Pro	Gln	Ser	Asn	Arg	Asp	Asn	Ile	Arg	Thr	Ala	Lys
			85						90					95	

Ser	Asn	Gly	Ile	Ser	Leu	Pro	Tyr	Thr	Pro	Asn	Ser	Phe	Thr	Pro	Leu
		100						105					110		

Pro	Gly	Ser	Ser	Leu	Tyr	Ile	Ile	Asn	Pro	Ala	Asn	Lys	Gly	Tyr	Leu
	115						120					125			

Val	Glu	Thr	Asp	Pro	Arg	Phe	Ala	Asn	Tyr	Arg	Gln	Trp	Leu	Gly	Ser
	130					135					140				

Asp	Tyr	Met	Leu	Gly	Ser	Leu	Lys	Leu	Asp	Pro	Asn	Asn	Leu	His	Lys
145					150				155						160

Arg	Leu	Gly	Asp	Gly	Tyr	Tyr	Glu	Gln	Arg	Leu	Ile	Asn	Glu	Gln	Ile
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Ala Glu Leu Thr Gly His Arg Arg Leu Asp Gly Tyr Gln Asn Asp Glu
 180 185 190
 Glu Gln Phe Lys Ala Leu Met Asp Asn Gly Ala Thr Ala Ala Arg Ser
 195 200 205
 Met Asn Leu Ser Val Gly Ile Ala Leu Ser Ala Glu Gln Ala Ala Gln
 210 215 220
 Leu Thr Ser Asp Ile Val Trp Leu Val Gln Lys Glu Val Lys Leu Pro
 225 230 235 240
 Asp Gly Gly Thr Gln Thr Val Leu Met Pro Gln Val Tyr Val Arg Val
 245 250 255
 Lys Asn Gly Gly Ile Asp Gly Lys Gly Ala Leu Leu Ser Gly Ser Asn
 260 265 270
 Thr Gln Ile Asn Val Ser Gly Ser Leu Lys Asn Ser Gly Thr Ile Ala
 275 280 285
 Gly Arg Asn Ala Leu Ile Ile Asn Thr Asp Thr Leu Asp Asn Ile Gly
 290 295 300
 Gly Arg Ile His Ala Gln Lys Ser Ala Val Thr Ala Thr Gln Asp Ile
 305 310 315 320
 Asn Asn Ile Gly Gly Ile Leu Ser Ala Glu Gln Thr Leu Leu Leu Asn
 325 330 335
 Ala Gly Asn Asn Ile Asn Asn Gln Ser Thr Ala Lys Ser Ser Gln Asn
 340 345 350
 Ala Gln Gly Ser Ser Thr Tyr Leu Asp Arg Met Ala Gly Ile Tyr Ile
 355 360 365
 Thr Gly Lys Glu Lys Gly Val Leu Ala Ala Gln Ala Gly Lys Asp Ile
 370 375 380
 Asn Ile Ile Ala Gly Gln Ile Ser Asn Gln Ser Asp Gln Gly Gln Thr
 385 390 395 400
 Arg Leu Gln Ala Gly Arg Asp Ile Asn Leu Asp Thr Val Gln Thr Gly
 405 410 415
 Lys Tyr Gln Glu Ile His Phe Asp Ala Asp Asn His Thr Ile Arg Gly
 420 425 430
 Ser Thr Asn Glu Val Gly Ser Ser Ile Gln Thr Lys Gly Asp Val Thr
 435 440 445
 Leu Leu Ser Gly Asn Asn Leu Asn Ala Lys Ala Ala Glu Val Gly Ser
 450 455 460
 Ala Lys Gly Thr Leu Ala Val Tyr Ala Lys Asn Asp Ile Thr Ile Ser

465		470		475		480
Ser Gly Ile His	Ala Gly Gln Val	Asp Asp Ala Ser	Lys His Thr Gly			
	485		490			495
Arg Ser Gly Gly	Gly Asn Lys Leu	Val Ile Thr Asp	Lys Ala Gln Ser			
	500		505			510
His His Glu Thr	Ala Gln Ser Ser	Thr Phe Glu Gly	Lys Gln Val Val			
	515		520			525
Leu Gln Ala Gly	Asn Asp Ala Asn	Ile Leu Gly Ser	Asn Val Ile Ser			
	530		535			540
Asp Asn Gly Thr	Arg Ile Gln Ala	Gly Asn His Val	Arg Ile Gly Thr			
	545		550			555
Thr Gln Thr Gln	Ser Gln Ser Glu	Thr Tyr His Gln	Thr Gln Lys Ser			
	565		570			575
Gly Leu Met Ser	Ala Gly Ile Gly	Phe Thr Ile Gly	Ser Lys Thr Asn			
	580		585			590
Thr Gln Glu Asn	Gln Ser Gln Ser	Asn Glu His Thr	Gly Ser Thr Val			
	595		600			605
Gly Ser Leu Lys	Gly Asp Thr Thr	Ile Val Ala Ser	Lys His Tyr Glu			
	610		615			620
Gln Thr Gly Ser	Asn Val Ser Ser	Pro Glu Gly Asn	Asn Leu Ile Ser			
	625		630			635
Thr Gln Ser Met	Asp Ile Gly Ala	Ala Gln Asn Gln	Leu Asn Ser Lys			
	645		650			655
Thr Thr Gln Thr	Tyr Glu Gln Lys	Gly Leu Thr Val	Ala Phe Ser Ser			
	660		665			670
Pro Val Thr Asp	Leu Ala Gln Gln	Ala Ile Ala Val	Ala His Lys Ala			
	675		680			685
Ala Asn Lys Ser	Asp Lys Ala Lys	Thr Thr Ala Leu	Met Pro Trp Arg			
	690		695			700
Leu Pro Met Gln	Val Gly Arg Pro	Ile Lys Gln Ala	Lys Ala His Lys			
	705		710			715
						720

Thr

<210> 523
 <211> 525
 <212> DNA
 <213> Neisseria meningitidis
 <400> 523

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ctgctcaaca	gcawaaccag	ccatgtccgc	gacggcaaac	cgtcggcgcg	gtcagtcatg	180
atgccgaaac	cccaaccggc	ggtcacaaaa	acggcaaac	cccaagaccc	cgycatgcgc	240
aacctgcaag	aacaggatgc	cgtctacatc	gccaagcaga	aacaggcaaa	agcctccccg	300
ttcaaaaccg	aaatcgaaac	cgccttggaa	gaaagcggca	ttatcggcaa	ctccgcccac	360
accgtttccg	aaccccaaac	cggacattcc	gcaacgaaac	ctgccgacgc	gtcggcaaaa	420
cctgcacccg	ttccgcaaac	acctgcaaaa	cgctgatta	cgctcaaaga	actgtcaaaa	480
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<210> 524
 <211> 175
 <212> PRT
 <213> Neisseria meningitidis

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Phe Gly His Ser Asp Lys Asp Ala Leu Leu Asn Ser Xaa Thr Ser His
 35 40 45

Val Arg Asp Gly Lys Pro Ser Gly Gly Ser Val Met Met Pro Lys Pro
 50 55 60

Gln Pro Ala Val Lys Lys Thr Ala Lys Pro Gln Asp Pro Xaa Met Arg
 65 70 75 80

Asn Leu Gln Glu Gln Asp Ala Val Tyr Ile Ala Lys Gln Lys Gln Ala
 85 90 95

Lys Ala Ser Pro Phe Lys Thr Glu Ile Glu Thr Ala Leu Glu Glu Ser
 100 105 110

Gly Ile Ile Gly Asn Ser Ala His Thr Val Ser Glu Pro Gln Thr Gly
 115 120 125

His Ser Ala Thr Lys Pro Ala Asp Ala Ser Ala Lys Pro Ala Pro Val
 130 135 140

Pro Gln Thr Pro Ala Lys Pro Leu Ile Thr Leu Lys Glu Leu Ser Lys
 145 150 155 160

Val Glu Leu Ser Trp Phe Asp Val Arg Ile Asp Phe Ile Ser Tyr
165 170 175

<210> 525
<211> 1287
<212> DNA
<213> Neisseria meningitidis

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ctgctcaaca gcaaaaccag ccatgtccgc gacggcaaac cgtccggcgg gtcagtcatg 180
atgccgaaac cccaaccggc ggtcaaaaaa acggcaaaac cccaagaccc cgccatgcgc 240
aacctgcaag aacaggatgc cgtctacatc gccaaagcaga aacaggcaaa agcctccccg 300
ttcaaaaccg aaatcgaaac cgccttggaa gaaagcggca ttatcggaac ctccgcccac 360
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cctgcaccgc ttccgcaaac acctgcaaaa ccgctgatta cgctcaaaga actgtcaaaa 480
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aaaaccgcat tgcgcctgtt ctcttaa 1287

<210> 526
<211> 428
<212> PRT
<213> Neisseria meningitidis

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Phe Gly His Ser Asp Lys Asp Ala Leu Leu Asn Ser Lys Thr Ser His
35 40 45
Val Arg Asp Gly Lys Pro Ser Gly Gly Ser Val Met Met Pro Lys Pro
50 55 60
Gln Pro Ala Val Lys Lys Thr Ala Lys Pro Gln Asp Pro Ala Met Arg
65 70 75 80
Asn Leu Gln Glu Gln Asp Ala Val Tyr Ile Ala Lys Gln Lys Gln Ala

85										90					95															
Lys	Ala	Ser	Pro	Phe	Lys	Thr	Glu	Ile	Glu	Thr	Ala	Leu	Glu	Glu	Ser															
			100						105					110																
Gly	Ile	Ile	Gly	Asn	Ser	Ala	His	Thr	Val	Ser	Glu	Pro	Gln	Thr	Gly															
		115						120					125																	
His	Ser	Ala	Pro	Lys	Pro	Ala	Asp	Ala	Pro	Ala	Lys	Pro	Ala	Pro	Val															
		130					135					140																		
Pro	Gln	Thr	Pro	Ala	Lys	Pro	Leu	Ile	Thr	Leu	Lys	Glu	Leu	Ser	Lys															
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Val	Glu	Leu	Pro	Trp	Phe	Asp	Val	Arg	Phe	Asp	Phe	Ile	Ser	Tyr	Ile															
				165				170						175																
Ala	Leu	Thr	Glu	Ala	Lys	Glu	Leu	His	Ala	Leu	Pro	Arg	Leu	Ser	Asn															
		180						185					190																	
Arg	Cys	Arg	Tyr	Gln	Ile	Val	Gly	Cys	Thr	Met	Asp	Asp	His	Phe	Gln															
		195					200					205																		
Ile	Ala	Glu	Pro	Ile	Pro	Gly	Ile	Arg	Tyr	Gln	Ala	Phe	Ile	Val	Gly															
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Ile	Gln	Ala	Val	Ser	Arg	Asn	Gly	Leu	Ala	Ser	Gln	Glu	Glu	Leu	Ser															
	225				230					235					240															
Ala	Phe	Asn	Arg	Gln	Val	Asp	Ala	Phe	Ala	Gln	Ser	Met	Gly	Gly	Gln															
			245					250					255																	
Thr	Leu	His	Thr	Asp	Leu	Ala	Ala	Phe	Ile	Glu	Val	Ala	Ser	Ala	Leu															
			260					265					270																	
Asp	Ala	Phe	Cys	Ala	Arg	Val	Asp	Gln	Thr	Ile	Ala	Ile	His	Leu	Val															
		275					280					285																		
Ser	Pro	Thr	Ser	Ile	Ser	Gly	Val	Glu	Leu	Arg	Ser	Ala	Val	Thr	Gly															
	290					295					300																			
Val	Gly	Phe	Val	Leu	Glu	Asp	Asp	Gly	Ala	Phe	His	Tyr	Thr	Asp	Thr															
	305				310					315				320																
Ser	Gly	Ser	Thr	Met	Phe	Ser	Ile	Cys	Ser	Leu	Asn	Asn	Glu	Pro	Phe															
				325				330					335																	
Thr	Asn	Ala	Leu	Leu	Asp	Asn	Gln	Ser	Tyr	Lys	Gly	Phe	Ser	Met	Leu															
		340					345					350																		
Leu	Asp	Ile	Pro	His	Ser	Pro	Ala	Gly	Glu	Lys	Thr	Phe	Asp	Asp	Leu															
	355						360					365																		
Phe	Met	Asp	Leu	Ala	Val	Arg	Leu	Ser	Gly	Gln	Leu	Asn	Leu	Asn	Leu															
	370					375					380																			

Val Asn Asp Lys Met Glu Glu Val Ser Thr Gln Trp Leu Lys Asp Val
385 390 395 400

Arg Thr Tyr Val Leu Ala Arg Gln Ser Glu Met Leu Lys Val Gly Ile
405 410 415

Glu Pro Gly Gly Lys Thr Ala Leu Arg Leu Phe Ser
420 425

<210> 527

<211> 1287

<212> DNA

<213> Neisseria meningitidis

<400> 527

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ctgctcaaca	gcaaaaccag	ccatgtccgc	gacggcaaac	cgtcggcgcg	gccagtcag	180
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aacctgcaag	agcaggatgc	cgtctacatc	gccaagcaga	aacaggcaaa	agcctccccg	300
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accgttcccc	aaccccaaac	cggacattcc	gcaccaaacc	ctgccgacgc	gccggcaaaa	420
cctgttcccc	ttccgcaaac	gccggcaaaa	ccgctgatta	cgctcaaaga	gctgtcgaag	480
gtcgagctgc	cctggtttga	cgtgcgcttc	gacttcatct	cttatatcgc	gctgaccgaa	540
gccaaagaac	tgcacgcact	gccgcgcctt	tccaaccgct	gccgctacca	gattgtcggc	600
tgcaccatgg	acgaccattt	ccagattgcc	gaacccatcc	cgggcatccg	ctatcaggca	660
tttatcgtgg	gtattcaggc	agtcagccgc	aacggacttg	cctcgcagga	agaactctcc	720
gcattcaacc	gccaggtgga	tgcattcgca	cacagcatgg	gcggtcagac	gctgcacacc	780
gaccttgccg	cctttatcga	agtggcttcc	gacttggaag	cattctgcgc	gcgcgtcgac	840
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gccgtaacgg	gcgtgggttt	cgttttgga	gacgacggcg	cgttccacta	taccgacacg	960
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aacctgaatc	tggtaacga	caaatggaa	gaagtttcga	cccaatggct	caaagacgtg	1200

cgcacttatg	tattggctcg	tcagtcgcgag	atgctcaaag	tcggtatcga	accgggcggc	1260
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<211> 428

<212> PRT

<213> Neisseria meningitidis

<400> 528

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35 40 45

Val Arg Asp Gly Lys Pro Ser Gly Gly Pro Val Met Met Pro Lys Pro
50 55 60

Gln Pro Ala Val Lys Lys Thr Ala Lys Ser Gln Asp Pro Ala Met Arg
 65 70 75 80
 Asn Leu Gln Glu Gln Asp Ala Val Tyr Ile Ala Lys Gln Lys Gln Ala
 85 90 95
 Lys Ala Ser Pro Phe Lys Thr Glu Ile Glu Thr Ala Leu Glu Glu Ser
 100 105 110
 Gly Ile Ile Gly Asn Ser Ala His Thr Val Pro Glu Pro Gln Thr Gly
 115 120 125
 His Ser Ala Pro Lys Pro Ala Asp Ala Pro Ala Lys Pro Val Pro Val
 130 135 140
 Pro Gln Thr Pro Ala Lys Pro Leu Ile Thr Leu Lys Glu Leu Ser Lys
 145 150 155 160
 Val Glu Leu Pro Trp Phe Asp Val Arg Phe Asp Phe Ile Ser Tyr Ile
 165 170 175
 Ala Leu Thr Glu Ala Lys Glu Leu His Ala Leu Pro Arg Leu Ser Asn
 180 185 190
 Arg Cys Arg Tyr Gln Ile Val Gly Cys Thr Met Asp Asp His Phe Gln
 195 200 205
 Ile Ala Glu Pro Ile Pro Gly Ile Arg Tyr Gln Ala Phe Ile Val Gly
 210 215 220
 Ile Gln Ala Val Ser Arg Asn Gly Leu Ala Ser Gln Glu Glu Leu Ser
 225 230 235 240
 Ala Phe Asn Arg Gln Val Asp Ala Phe Ala His Ser Met Gly Gly Gln
 245 250 255
 Thr Leu His Thr Asp Leu Ala Ala Phe Ile Glu Val Ala Ser Ala Leu
 260 265 270
 Asp Ala Phe Cys Ala Arg Val Asp Gln Thr Ile Ala Ile His Leu Val
 275 280 285
 Ser Pro Thr Ser Ile Ser Gly Val Glu Leu Arg Ser Ala Val Thr Gly
 290 295 300
 Val Gly Phe Val Leu Glu Asp Asp Gly Ala Phe His Tyr Thr Asp Thr
 305 310 315 320
 Ser Gly Ser Thr Met Phe Ser Ile Cys Ser Leu Asn Asn Glu Pro Phe
 325 330 335
 Thr Asn Ala Leu Leu Asp Asn Gln Ser Tyr Lys Gly Phe Ser Met Leu
 340 345 350
 Leu Asp Ile Pro His Ser Pro Ala Gly Glu Lys Thr Phe Asp Asp Leu

355 360 365
 Phe Met Asp Leu Ala Val Arg Leu Ser Gly Gln Leu Asn Leu Asn Leu
 370 375 380
 Val Asn Asp Lys Met Glu Glu Val Ser Thr Gln Trp Leu Lys Asp Val
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 Arg Thr Tyr Val Leu Ala Arg Gln Ser Glu Met Leu Lys Val Gly Ile
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 Glu Pro Gly Gly Lys Thr Ala Leu Arg Leu Phe Ser
 420 425

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 <211> 1287
 <212> DNA
 <213> *Neisseria gonorrhoeae*

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 caggaaaacc aataccgcaa aaaagtgcgc gaccagttcg gacactccga caaagatgcc 120
 ctgctcaaca gcaaaaccag ccatgtccgc gacggcaaac cgtccggcgg gccagtcag 180
 atgccgaaac cccaaccggc ggtcaaaaaa ccggccaaac cccaagactc cgccatgcgc 240
 aacctgcaag aacaggatgc cgtctacatc gccaagcaga aacaggcaaa agcctccccg 300
 ttcaaaaccg aaatcgaaac cgccttggaa gaaatcggca ttatcggcaa ctccgcccac 360
 accgtttccg aaccccaaac cggacattcc gcaccgaaac ctgccgacgc gccggcaaaa 420
 cccgttcccg ttccgcaaac gccggcaaaa ccgctgatta cgctcaaaga gctgtcgaag 480
 gtgcagctgc cctggtttga cgtgcgcttc gacttcatct cctatatcgc gctgaccgaa 540
 gccaaagaac tgcacgcact gccgcgcctt tccaaccgct gccgctacca gattgtcggc 600
 tgcaccatgg acgaccattt ccagattgcc gaaccatcc cgggcatccg ctatcaggca 660
 tttatcgtgg gtatccaggc agtcagccgc aacggacttg cctcgcagga agaactctcc 720
 gcattcaacc gccaggcgga cgcattcgca caaagcatgg gcggtcagac gctgcacacc 780
 gaccttgccg cctttatcga agtggcttcc gcaactggac cattctgcgc gcgcgtcgac 840
 cagaccatcg ccattccattt ggtttcgcgc accagcatca gcggcgtaga actgcgttcc 900
 gcgtaacgg gcgtgggttt cgttttggaa gacgacggcg cgttccacta taccgacacg 960
 tcgggctcga ccatgttctc catctgctcg ctcaacaacg agccgtttac caatgccctt 1020

 ttggacaacc agtctacaa aggtttcagt atgtctgctc acatcccga ctctccggca 1080
 ggcgaaaaaa ccttcgacga ttgttttatg gatttgccgg tacgcctgtc cggtcagttg 1140
 aacctgaatc tggtaacga caaatggaa gaagtttcga ccaatggct caaagacgta 1200
 cgcacttatg tattggcgcg tcagtcagag atgtcacaag tcggtatcga accgggcggc 1260
 aaaaccgccc tgcgcctgtt ttcataa 1287

<210> 530
 <211> 428
 <212> PRT
 <213> *Neisseria gonorrhoeae*

<400> 530
 Met Ile Tyr Ile Val Leu Phe Leu Ala Ala Val Leu Ala Val Val Ala
 1 5 10 15
 Tyr Asn Met Tyr Gln Glu Asn Gln Tyr Arg Lys Lys Val Arg Asp Gln
 20 25 30

Phe Gly His Ser Asp Lys Asp Ala Leu Leu Asn Ser Lys Thr Ser His
35 40 45
Val Arg Asp Gly Lys Pro Ser Gly Gly Pro Val Met Met Pro Lys Pro
50 55 60
Gln Pro Ala Val Lys Lys Pro Ala Lys Pro Gln Asp Ser Ala Met Arg
65 70 75 80
Asn Leu Gln Glu Gln Asp Ala Val Tyr Ile Ala Lys Gln Lys Gln Ala
85 90 95
Lys Ala Ser Pro Phe Lys Thr Glu Ile Glu Thr Ala Leu Glu Glu Ile
100 105 110
Gly Ile Ile Gly Asn Ser Ala His Thr Val Ser Glu Pro Gln Thr Gly
115 120 125
His Ser Ala Pro Lys Pro Ala Asp Ala Pro Ala Lys Pro Val Pro Val
130 135 140
Pro Gln Thr Pro Ala Lys Pro Leu Ile Thr Leu Lys Glu Leu Ser Lys
145 150 155 160
Val Glu Leu Pro Trp Phe Asp Val Arg Phe Asp Phe Ile Ser Tyr Ile
165 170 175
Ala Leu Thr Glu Ala Lys Glu Leu His Ala Leu Pro Arg Leu Ser Asn
180 185 190
Arg Cys Arg Tyr Gln Ile Val Gly Cys Thr Met Asp Asp His Phe Gln
195 200 205
Ile Ala Glu Pro Ile Pro Gly Ile Arg Tyr Gln Ala Phe Ile Val Gly
210 215 220
Ile Gln Ala Val Ser Arg Asn Gly Leu Ala Ser Gln Glu Glu Leu Ser
225 230 235 240
Ala Phe Asn Arg Gln Ala Asp Ala Phe Ala Gln Ser Met Gly Gly Gln
245 250 255
Thr Leu His Thr Asp Leu Ala Ala Phe Ile Glu Val Ala Ser Ala Leu
260 265 270
Asp Ala Phe Cys Ala Arg Val Asp Gln Thr Ile Ala Ile His Leu Val
275 280 285
Ser Pro Thr Ser Ile Ser Gly Val Glu Leu Arg Ser Ala Val Thr Gly
290 295 300
Val Gly Phe Val Leu Glu Asp Asp Gly Ala Phe His Tyr Thr Asp Thr
305 310 315 320
Ser Gly Ser Thr Met Phe Ser Ile Cys Ser Leu Asn Asn Glu Pro Phe
325 330 335

Thr Asn Ala Leu Leu Asp Asn Gln Ser Tyr Lys Gly Phe Ser Met Leu
 340 345 350
 Leu Asp Ile Pro His Ser Pro Ala Gly Glu Lys Thr Phe Asp Asp Leu
 355 360 365
 Phe Met Asp Leu Ala Val Arg Leu Ser Gly Gln Leu Asn Leu Asn Leu
 370 375 380
 Val Asn Asp Lys Met Glu Glu Val Ser Thr Gln Trp Leu Lys Asp Val
 385 390 395 400
 Arg Thr Tyr Val Leu Ala Arg Gln Ser Glu Met Leu Lys Val Gly Ile
 405 410 415
 Glu Pro Gly Gly Lys Thr Ala Leu Arg Leu Phe Ser
 420 425

<210> 531
 <211> 464
 <212> DNA
 <213> Neisseria meningitidis

<400> 531
 gcgcggcagc gcacggaaga tttcttcatg aacaacagcg acacatcagg cagatagtcg 60
 aaagcaccac cggtacgatg aagctgctga tttcctccat cgccctgatt tcattggtag 120
 tcggcggcac cggcgtgatg aacatcatgc tgggtgtccgt taccgagcgc accaaagaaa 180
 tcggcatacg gatggcaatc ggcgcgcggc gcggcaatat ttygcagcag tttttgattg 240
 aggcggtggt aatctgcgtc atcggcggtt tggtcggcgt gggtttgtcc gccgccgtca 300
 gcctcgtggt caatcatttt gtaaccgaact tcccgatgga catttccgcc atgtccgtca 360
 tcggcgcggt cgctgttcg accggaatcg gcacgcggtt cggctttatg cctgccaata 420
 aagcagccaa actcaatccg atagacgcat tggcacagga ttga 464

<210> 532
 <211> 154
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (15)..(15)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (75)..(75)
 <223> Xaa= any amino acid

<400> 532
 Ala Arg His Gly Thr Glu Asp Phe Phe Met Asn Asn Ser Asp Xaa Ile
 1 5 10 15
 Arg Gln Ile Val Glu Ser Thr Thr Gly Thr Met Lys Leu Leu Ile Ser
 20 25 30

Ser Ile Ala Leu Ile Ser Leu Val Val Gly Gly Ile Gly Val Met Asn
 35 40 45

Ile Met Leu Val Ser Val Thr Glu Arg Thr Lys Glu Ile Gly Ile Arg
 50 55 60

Met Ala Ile Gly Ala Arg Arg Gly Asn Ile Xaa Gln Gln Phe Leu Ile
 65 70 75 80

Glu Ala Val Leu Ile Cys Val Ile Gly Gly Leu Val Gly Val Gly Leu
 85 90 95

Ser Ala Ala Val Ser Leu Val Phe Asn His Phe Val Thr Asp Phe Pro
 100 105 110

Met Asp Ile Ser Ala Met Ser Val Ile Gly Ala Val Ala Cys Ser Thr
 115 120 125

Gly Ile Gly Ile Ala Phe Gly Phe Met Pro Ala Asn Lys Ala Ala Lys
 130 135 140

Leu Asn Pro Ile Asp Ala Leu Ala Gln Asp
 145 150

<210> 533
 <211> 1167
 <212> DNA
 <213> Neisseria meningitidis

<400> 533
 atgtcggtagc aagcagtatt ggcgcacaaa atgcgttcgc ttctgacgat gctcggcatc 60
 atcatcggta tcgcgtcggt ggtttccgctc gtcgcattgg gcaatgggtc gcagaaaaaa 120
 atccttgaag acatcagttc gatagggacg aacaccatca gcatcttccc ggggcgcggc 180
 ttccggcgaca ggcgcagcgg caggattaaa accctgacca tagacgacgc aaaaatcatc 240
 gccaaacaaa gctacgttgc ttccgccacg cccatgactt cgagcggcgg cacgctgact 300
 taccgcaaca ccgacctgac cgcctcgctt tacggcgtgg gcgaacaata ttctgacgtg 360
 cgcggactga agctggaaaac ggggcgggctg tttgacgaaa acgatgtgaa agaagacgcg 420
 caggctcgctg tcatcgacca aaatgtcaaa gacaaactct ttgcggactc ggatccgttg 480
 ggtaaaaacca ttttgttcag gaaacgcccc ttgaccgtca tcggcgtgat gaaaaaagac 540

gaaaaacgctt tcggcaattc cgacgtgctg atgcttttgg cgccctatac gacggtgatg 600
 caccaaatca caggcgagag ccacaccaac tccatcaccg tcaaaatcaa agacaatgcc 660
 aatacccagg ttgccgaaaa agggctgacc gatctgctca aagcgcggca cggcacggaa 720
 gatttcttca tgaacaacag cgacagcatc aggcagatag tcgaaagcac caccggtacg 780
 atgaagctgc tgatttcctc catcgccctg atttcattgg tagtcggcgg catcggcgctg 840
 atgaacatca tgctggtgtc cgttaccgag cgcaccaaag aaatcggcat acggatggca 900
 atcggcgcgc ggcgcggcaa tattttgcag cagtttttga ttgaggcggg gttaatctgc 960
 gtcacgcggc gtttggtcgg cgtgggtttg tccgccgcgc tcagcctcgt gttcaatcat 1020
 tttgtaaccg acttcccgat ggacatttcc gccatgtccg tcacgcggcg ggtcgcctgt 1080
 tcgaccggaa tcggcatcgc gttcggcttt atgcctgccca ataaagcagc caaactcaat 1140
 ccgatagacg cattggcaca ggattga 1167

<210> 534
 <211> 388
 <212> PRT

<213> Neisseria meningitidis

<400> 534

Met Ser Val Gln Ala Val Leu Ala His Lys Met Arg Ser Leu Leu Thr.
1 5 10 15

Met Leu Gly Ile Ile Ile Gly Ile Ala Ser Val Val Ser Val Val Ala
20 25 30

Leu Gly Asn Gly Ser Gln Lys Lys Ile Leu Glu Asp Ile Ser Ser Ile
35 40 45

Gly Thr Asn Thr Ile Ser Ile Phe Pro Gly Arg Gly Phe Gly Asp Arg
50 55 60

Arg Ser Gly Arg Ile Lys Thr Leu Thr Ile Asp Asp Ala Lys Ile Ile
65 70 75 80

Ala Lys Gln Ser Tyr Val Ala Ser Ala Thr Pro Met Thr Ser Ser Gly
85 90 95

Gly Thr Leu Thr Tyr Arg Asn Thr Asp Leu Thr Ala Ser Leu Tyr Gly
100 105 110

Val Gly Glu Gln Tyr Phe Asp Val Arg Gly Leu Lys Leu Glu Thr Gly
115 120 125

Arg Leu Phe Asp Glu Asn Asp Val Lys Glu Asp Ala Gln Val Val Val
130 135 140

Ile Asp Gln Asn Val Lys Asp Lys Leu Phe Ala Asp Ser Asp Pro Leu
145 150 155 160

Gly Lys Thr Ile Leu Phe Arg Lys Arg Pro Leu Thr Val Ile Gly Val
165 170 175

Met Lys Lys Asp Glu Asn Ala Phe Gly Asn Ser Asp Val Leu Met Leu
180 185 190

Trp Ser Pro Tyr Thr Thr Val Met His Gln Ile Thr Gly Glu Ser His
195 200 205

Thr Asn Ser Ile Thr Val Lys Ile Lys Asp Asn Ala Asn Thr Gln Val
210 215 220

Ala Glu Lys Gly Leu Thr Asp Leu Leu Lys Ala Arg His Gly Thr Glu
225 230 235 240

Asp Phe Phe Met Asn Asn Ser Asp Ser Ile Arg Gln Ile Val Glu Ser
245 250 255

Thr Thr Gly Thr Met Lys Leu Leu Ile Ser Ser Ile Ala Leu Ile Ser
260 265 270

Leu Val Val Gly Gly Ile Gly Val Met Asn Ile Met Leu Val Ser Val
275 280 285

Thr Glu Arg Thr Lys Glu Ile Gly Ile Arg Met Ala Ile Gly Ala Arg
 290 295 300

Arg Gly Asn Ile Leu Gln Gln Phe Leu Ile Glu Ala Val Leu Ile Cys
 305 310 315 320

Val Ile Gly Gly Leu Val Gly Val Gly Leu Ser Ala Ala Val Ser Leu
 325 330 335

Val Phe Asn His Phe Val Thr Asp Phe Pro Met Asp Ile Ser Ala Met
 340 345 350

Ser Val Ile Gly Ala Val Ala Cys Ser Thr Gly Ile Gly Ile Ala Phe
 355 360 365

Gly Phe Met Pro Ala Asn Lys Ala Ala Lys Leu Asn Pro Ile Asp Ala
 370 375 380

Leu Ala Gln Asp
 385

<210> 535
 <211> 1167
 <212> DNA
 <213> Neisseria meningitidis

<400> 535
 atgtcgggtgc aagcagtatt ggcgacacaaa atgcgttcgc ttctgacgat gctcggcatc 60
 atcatcggta tgcgttcgggt tgtctccgctc gtcgcattgg gcaacgggtc gcagaaaaaa 120
 atccttgaag acatcagttc gatagggacg aacaccatca gcatcttccc agggcgcggc 180
 ttccggcgaca ggcgacggcg caggattaaa accctgacca tagacgacgc aaaaatcatc 240
 gccaaacaaa gctacgttgc ttccgccacg cccatgactt cgagcggcgcg cacgctgact 300
 taccgcaata ccgacctgac cgcttctttg tacggtgtgg gcgaacaata ttctgacgtg 360
 cgcggggtga agctggaaac gggcgggctg ttgacgaaa acgatgtgaa agaagacgcg 420
 caggctcgctg tcatcgacca aaatgtcaaa gacaaactct ttgcggactc ggatccgttg 480
 ggtaaaacca ttttgttcag gaaacgcccc ttgaccgtca tcggcgtgat gaaaaaagac 540
 gaaaacgctt tcggcaattc cgacgtgctg atgcttttgt cgccctatac gacggtgatg 600
 caccaaatca caggcgagag ccacaccaac tccatcacgc tcaaaatcaa agacaatgcc 660
 aatacccagg ttgccgaaaa agggctgacc gatctgctca aagcgcgga cggcacggaa 720
 gatttcttca tgaacaacag cgacagcatc aggcagatag tcgaaagcac caccggtacg 780
 atgaagctgc tgatttcctc catcgccctg atttcattgg tagtcggcgg catcggcgtg 840

atgaacatca tgctggtgtc cgttaccgag cgcaccaaag aaatcggcat acggatggca 900
 atcggcgcg cgcgcggcaa tattttgcag cagtttttga ttgaggcgggt gttaatctgc 960
 gtcacggcg gtttggtcgg cgtgggtttg tccgccgcgc tcagcctcgt gttcaatcat 1020
 tttgtaaccg acttcccgat ggacatttcc gccatgtccg tcacggcgcg ggtcgccgtg 1080
 tcgaccggaa tcggcatcgc gttcggttt atgcctgcc aataaagcag caaactcaat 1140
 ccgatagatg cattggcgca ggattga 1167

<210> 536
 <211> 388
 <212> PRT
 <213> Neisseria meningitidis

<400> 536

Met	Ser	Val	Gln	Ala	Val	Leu	Ala	His	Lys	Met	Arg	Ser	Leu	Leu	Thr	1	5	10	15
Met	Leu	Gly	Ile	Ile	Ile	Gly	Ile	Ala	Ser	Val	Val	Ser	Val	Val	Ala	20	25	30	
Leu	Gly	Asn	Gly	Ser	Gln	Lys	Lys	Ile	Leu	Glu	Asp	Ile	Ser	Ser	Ile	35	40	45	
Gly	Thr	Asn	Thr	Ile	Ser	Ile	Phe	Pro	Gly	Arg	Gly	Phe	Gly	Asp	Arg	50	55	60	
Arg	Ser	Gly	Arg	Ile	Lys	Thr	Leu	Thr	Ile	Asp	Asp	Ala	Lys	Ile	Ile	65	70	75	80
Ala	Lys	Gln	Ser	Tyr	Val	Ala	Ser	Ala	Thr	Pro	Met	Thr	Ser	Ser	Gly	85	90	95	
Gly	Thr	Leu	Thr	Tyr	Arg	Asn	Thr	Asp	Leu	Thr	Ala	Ser	Leu	Tyr	Gly	100	105	110	
Val	Gly	Glu	Gln	Tyr	Phe	Asp	Val	Arg	Gly	Leu	Lys	Leu	Glu	Thr	Gly	115	120	125	
Arg	Leu	Phe	Asp	Glu	Asn	Asp	Val	Lys	Glu	Asp	Ala	Gln	Val	Val	Val	130	135	140	
Ile	Asp	Gln	Asn	Val	Lys	Asp	Lys	Leu	Phe	Ala	Asp	Ser	Asp	Pro	Leu	145	150	155	160
Gly	Lys	Thr	Ile	Leu	Phe	Arg	Lys	Arg	Pro	Leu	Thr	Val	Ile	Gly	Val	165	170	175	
Met	Lys	Lys	Asp	Glu	Asn	Ala	Phe	Gly	Asn	Ser	Asp	Val	Leu	Met	Leu	180	185	190	
Trp	Ser	Pro	Tyr	Thr	Thr	Val	Met	His	Gln	Ile	Thr	Gly	Glu	Ser	His	195	200	205	
Thr	Asn	Ser	Ile	Thr	Val	Lys	Ile	Lys	Asp	Asn	Ala	Asn	Thr	Gln	Val	210	215	220	
Ala	Glu	Lys	Gly	Leu	Thr	Asp	Leu	Leu	Lys	Ala	Arg	His	Gly	Thr	Glu	225	230	235	240
Asp	Phe	Phe	Met	Asn	Asn	Ser	Asp	Ser	Ile	Arg	Gln	Ile	Val	Glu	Ser	245	250	255	
Thr	Thr	Gly	Thr	Met	Lys	Leu	Leu	Ile	Ser	Ser	Ile	Ala	Leu	Ile	Ser	260	265	270	
Leu	Val	Val	Gly	Gly	Ile	Gly	Val	Met	Asn	Ile	Met	Leu	Val	Ser	Val	275	280	285	
Thr	Glu	Arg	Thr	Lys	Glu	Ile	Gly	Ile	Arg	Met	Ala	Ile	Gly	Ala	Arg				

290 295 300

Arg Gly Asn Ile Leu Gln Gln Phe Leu Ile Glu Ala Val Leu Ile Cys
 305 310 315 320

Val Ile Gly Gly Leu Val Gly Val Gly Leu Ser Ala Ala Val Ser Leu
 325 330 335

Val Phe Asn His Phe Val Thr Asp Phe Pro Met Asp Ile Ser Ala Met
 340 345 350

Ser Val Ile Gly Ala Val Ala Cys Ser Thr Gly Ile Gly Ile Ala Phe
 355 360 365

Gly Phe Met Pro Ala Asn Lys Ala Ala Lys Leu Asn Pro Ile Asp Ala
 370 375 380

Leu Ala Gln Asp
 385

<210> 537
 <211> 1167
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 537

atgtcgggtgc	aagcagtatt	ggcgcacaaa	atgcgttcgc	ttctgaccat	gctcggcatc	60
atcatcggta	tcgcttcggt	tgtctccgtc	gtcgcgctgg	gcaacgggtc	gcagaaaaaa	120
atcctcgaag	acatcagttc	gatggggacg	aacaccatca	gcatcttccc	cgggcgcggc	180
ttcggcgaca	ggcgcagcgg	caaaatcaaa	accctgacca	tagacgacgc	aaaaatcatc	240
gccaaacaaa	gctacgttgc	ctccgccacg	cccatgactt	cgagcggcgg	cacgctgacc	300
taccgcaata	ccgacctgac	cgcttctttg	tacgggtgtg	gcgaacaata	tttcgacgtg	360
cgcgggctga	agctggaaac	ggggcggctg	tttgatgaga	acgatgtgaa	agaagacgcg	420
caagtcgtcg	tcatcgacca	aaatgtcaaa	gacaaaactct	ttgcggactc	ggatccgttg	480
ggtaaaacca	ttttgttcag	gaaacgcccc	ttgaccgtca	tcggcgtgat	gaaaaaagac	540
gaaaacgctt	tcggcaattc	cgacgtgctg	atgctttggt	cgccctatac	gacggtgatg	600
caccaaatac	caggcgagag	ccacaccaac	tccatcaccc	tcaaaatcaa	agacaatgcc	660
aataaccggg	ttgccgaaaa	agggctggcc	gagctgctca	aagcacggca	cggcacggaa	720
gacttcttta	tgaacaacag	cgacagcatc	aggcagatgg	tcgaaagcac	caccggtacg	780
atgaagctgc	tgatttcctc	catcgccctg	atttcattgg	tagtcggcgg	catcgggtgtg	840
atgaacatta	tgctggtgtc	cgttaccgag	cgcaccaaag	aaatcggcat	acggatggca	900
atcggcgcg	ggcgcggcaa	tattttgcag	cagtttttga	ttgaggcggg	gttaatctgc	960
atcatcggag	gcttggtcgg	cgtagggttg	tccgccgccg	tcagcctcgt	gttcaatcat	1020
tttgaaccg	atttcccgat	ggacatttcg	gcggcatccg	ttatcggggc	ggtcgcctgt	1080

tcgaccggaa	tcggcatcgc	gttcggcttt	atgcctgcc	ataaggcagc	caaactcaat	1140
ccgatagatg	cattggcgca	ggattga				1167

<210> 538
 <211> 388
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 538

Met	Ser	Val	Gln	Ala	Val	Leu	Ala	His	Lys	Met	Arg	Ser	Leu	Leu	Thr
1					5				10					15	

Met Leu Gly Ile Ile Ile Gly Ile Ala Ser Val Val Ser Val Val Ala
 20 25 30

Leu Gly Asn Gly Ser Gln Lys Lys Ile Leu Glu Asp Ile Ser Ser Met
 35 40 45

Gly Thr Asn Thr Ile Ser Ile Phe Pro Gly Arg Gly Phe Gly Asp Arg
 50 55 60

Arg Ser Gly Lys Ile Lys Thr Leu Thr Ile Asp Asp Ala Lys Ile Ile
 65 70 75 80

Ala Lys Gln Ser Tyr Val Ala Ser Ala Thr Pro Met Thr Ser Ser Gly
 85 90 95

Gly Thr Leu Thr Tyr Arg Asn Thr Asp Leu Thr Ala Ser Leu Tyr Gly
 100 105 110

Val Gly Glu Gln Tyr Phe Asp Val Arg Gly Leu Lys Leu Glu Thr Gly
 115 120 125

Arg Leu Phe Asp Glu Asn Asp Val Lys Glu Asp Ala Gln Val Val Val
 130 135 140

Ile Asp Gln Asn Val Lys Asp Lys Leu Phe Ala Asp Ser Asp Pro Leu
 145 150 155 160

Gly Lys Thr Ile Leu Phe Arg Lys Arg Pro Leu Thr Val Ile Gly Val
 165 170 175

Met Lys Lys Asp Glu Asn Ala Phe Gly Asn Ser Asp Val Leu Met Leu
 180 185 190

Trp Ser Pro Tyr Thr Thr Val Met His Gln Ile Thr Gly Glu Ser His
 195 200 205

Thr Asn Ser Ile Thr Val Lys Ile Lys Asp Asn Ala Asn Thr Arg Val
 210 215 220

Ala Glu Lys Gly Leu Ala Glu Leu Leu Lys Ala Arg His Gly Thr Glu
 225 230 235 240

Asp Phe Phe Met Asn Asn Ser Asp Ser Ile Arg Gln Met Val Glu Ser
 245 250 255

Thr Thr Gly Thr Met Lys Leu Leu Ile Ser Ser Ile Ala Leu Ile Ser
 260 265 270

Leu Val Val Gly Gly Ile Gly Val Met Asn Ile Met Leu Val Ser Val
 275 280 285

Thr Glu Arg Thr Lys Glu Ile Gly Ile Arg Met Ala Ile Gly Ala Arg
 290 295 300

Arg Gly Asn Ile Leu Gln Gln Phe Leu Ile Glu Ala Val Leu Ile Cys

305 310 315 320
 Ile Ile Gly Gly Leu Val Gly Val Gly Leu Ser Ala Ala Val Ser Leu
 325 330 335
 Val Phe Asn His Phe Val Thr Asp Phe Pro Met Asp Ile Ser Ala Ala
 340 345 350
 Ser Val Ile Gly Ala Val Ala Cys Ser Thr Gly Ile Gly Ile Ala Phe
 355 360 365
 Gly Phe Met Pro Ala Asn Lys Ala Ala Lys Leu Asn Pro Ile Asp Ala
 370 375 380
 Leu Ala Gln Asp
 385

<210> 539
 <211> 606
 <212> DNA
 <213> Neisseria meningitidis

<400> 539
 gggacgggag cgatgctgct gctgttttac gcggtaacga tctgcctttg gccactggcg 60
 ttaccctgag ttacacctcg tcgatttttt tggcggtatt ttcccttctg attttgaaag 120
 aacggatttc cgtttacacg caggcgggtgc tgctccttgg ttttgccggc gtgggtattgc 180
 tgcttaatcc ctcgttccgc agcggtcagg aaacggcggc actcgccggg ctggcgggcg 240
 gcgcgatgtc cggctgggcg tatttgaaag tgcgcgaact gtctttggcg ggcgaacccg 300
 gctggcgcggt cgtgttttac ctttccgtga cagggtgtggc gatgtcgtcg gtttgggcca 360
 cgctgaccgg ctggcacacc ctgtcctttc catcggcagt ttatctgtcg tgcacggcg 420
 tgtccgcgct gattgcccac ctgtcgatga cgcgcgccta caaagtcggc gacaaattca 480
 cggttgcctc gcttttctat atgaccgtcg tttttccgc tctgtctgcc gcattttttc 540
 tgggccaaga gcttttcttg caggaaatac tcggtatgtg catcatcatc ctcagcggta 600
 ttttga 606

<210> 540
 <211> 201
 <212> PRT
 <213> Neisseria meningitidis

<400> 540
 Gly Thr Gly Ala Met Leu Leu Leu Phe Tyr Ala Val Thr Ile Leu Pro
 1 5 10 15
 Leu Ala Thr Gly Val Thr Leu Ser Tyr Thr Ser Ser Ile Phe Leu Ala
 20 25 30
 Val Phe Ser Phe Leu Ile Leu Lys Glu Arg Ile Ser Val Tyr Thr Gln
 35 40 45
 Ala Val Leu Leu Leu Gly Phe Ala Gly Val Val Leu Leu Leu Asn Pro
 50 55 60
 Ser Phe Arg Ser Gly Gln Glu Thr Ala Ala Leu Ala Gly Leu Ala Gly
 65 70 75 80

Gly Ala Met Ser Gly Trp Ala Tyr Leu Lys Val Arg Glu Leu Ser Leu
 85 90 95
 Ala Gly Glu Pro Gly Trp Arg Val Val Phe Tyr Leu Ser Val Thr Gly
 100 105 110
 Val Ala Met Ser Ser Val Trp Ala Thr Leu Thr Gly Trp His Thr Leu
 115 120 125
 Ser Phe Pro Ser Ala Val Tyr Leu Ser Cys Ile Gly Val Ser Ala Leu
 130 135 140
 Ile Ala Gln Leu Ser Met Thr Arg Ala Tyr Lys Val Gly Asp Lys Phe
 145 150 155 160
 Thr Val Ala Ser Leu Ser Tyr Met Thr Val Val Phe Ser Ala Leu Ser
 165 170 175
 Ala Ala Phe Phe Leu Gly Glu Glu Leu Phe Trp Gln Glu Ile Leu Gly
 180 185 190
 Met Cys Ile Ile Ile Ser Ala Val Phe
 195 200

<210> 541
 <211> 903
 <212> DNA
 <213> Neisseria meningitidis

<400> 541
 atggataccg caaaaaaaga catttttagga tccgggctgga tgctgggtggc ggccggcctgc 60
 tttaccatta tgaacgtatt gattaaagag gcatcggcaa aatttgccct cggcagcggc 120
 gaattggtct tttggcgcac gctgttttca accgttgccg tccggggtgc cgccgtattg 180
 cgtcgggaca mcttccgcac gccccattgg aaaaaccact taaaccgcag tatggtcggg 240
 acggggggcga tgctgctgct gttttacgcg gtaacgcac tgcctttggc cactggcggt 300
 accctgagtt acacctcgtc gatttttttg gcggtatttt ccttctgat tttgaaagaa 360
 cggatttcgc tttacacgca ggcggtgctg ctccctgggt ttgccggcgt ggtattgctg 420
 cttaatccct cgttccgcag cggtcaggaa acggcggcac tcgccgggct ggcggggcggc 480
 gcgatgtccg gctggggcgta tttgaaagtg cgcgaactgt ctttggcggg cgaacccggc 540
 tggcgcgctc tggtttacct ttccgtgaca ggtgtggcga tgctgctcgt ttgggcgacg 600
 ctgaccggct ggcacaccct gtcctttcca tcggcagttt atctgtcgt catcggcgtg 660
 tccgcgctga ttgcccact gtcgatgacg cgcgcctaca aagtcggcga caaattcacg 720
 gttgcctcgc tttcctatat gaccgtcgtt ttttccgctc tgtctgccgc attttttctg 780
 ggcaagagc ttttctggca ggaaatactc ggtatgtgca tcatcatcct cagcgggtatt 840
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 taa 903

<210> 542
 <211> 300
 <212> PRT
 <213> Neisseria meningitidis

<220>
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 <222> (64)..(64)

<223> Xaa= any amino acid

<400> 542

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20 25 30

Ala Lys Phe Ala Leu Gly Ser Gly Glu Leu Val Phe Trp Arg Met Leu
35 40 45

Phe Ser Thr Val Ala Leu Gly Ala Ala Ala Val Leu Arg Arg Asp Xaa
50 55 60

Phe Arg Thr Pro His Trp Lys Asn His Leu Asn Arg Ser Met Val Gly
65 70 75 80

Thr Gly Ala Met Leu Leu Leu Phe Tyr Ala Val Thr His Leu Pro Leu
85 90 95

Ala Thr Gly Val Thr Leu Ser Tyr Thr Ser Ser Ile Phe Leu Ala Val
100 105 110

Phe Ser Phe Leu Ile Leu Lys Glu Arg Ile Ser Val Tyr Thr Gln Ala
115 120 125

Val Leu Leu Leu Gly Phe Ala Gly Val Val Leu Leu Leu Asn Pro Ser
130 135 140

Phe Arg Ser Gly Gln Glu Thr Ala Ala Leu Ala Gly Leu Ala Gly Gly
145 150 155 160

Ala Met Ser Gly Trp Ala Tyr Leu Lys Val Arg Glu Leu Ser Leu Ala
165 170 175

Gly Glu Pro Gly Trp Arg Val Val Phe Tyr Leu Ser Val Thr Gly Val
180 185 190

Ala Met Ser Ser Val Trp Ala Thr Leu Thr Gly Trp His Thr Leu Ser
195 200 205

Phe Pro Ser Ala Val Tyr Leu Ser Cys Ile Gly Val Ser Ala Leu Ile
210 215 220

Ala Gln Leu Ser Met Thr Arg Ala Tyr Lys Val Gly Asp Lys Phe Thr
225 230 235 240

Val Ala Ser Leu Ser Tyr Met Thr Val Val Phe Ser Ala Leu Ser Ala
245 250 255

Ala Phe Phe Leu Gly Glu Glu Leu Phe Trp Gln Glu Ile Leu Gly Met
260 265 270

Cys Ile Ile Ile Leu Ser Gly Ile Leu Ser Ser Ile Arg Pro Thr Ala

275 280 285

Phe Lys Gln Arg Leu Gln Ser Leu Phe Arg Gln Arg
290 295 300

<210> 543
<211> 903
<212> DNA
<213> *Neisseria meningitidis*

<400> 543
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gaattggtct tttggcgcac gctgttttca accgttgccg tcggggctgc cgccgtattg 180
cgtcggggaca ccttcgcac gccccattgg aaaaaccact taaaccgcag tatggtcggg 240
acggggggcga tgctgctgct gttttacgcg gtaacgcac tgcctttggc caccggcggt 300
accctgagtt acacctcgtc gatttttttg gcggtatttt ccttcctgat tttgaaagaa 360
cggattttccg tttacacgca ggcggtgctg ctcccttggt ttgccggcgt ggtattgctg 420
cttaatccct cgttccgcag cggtcaggaa acggcggcac tcgccgggct ggcgggcggc 480
gcgatgtccg gctgggcgta tttgaaagt gcgcaactgt ctttggcggg cgaaccggc 540
tggcgcgtcg tgttttacct ttccgtgaca ggtgtggcga tgtcatcggt ttgggcgacg 600
ctgaccggct ggcacaccct gtcctttcca tcggcagttt atctgtcgtg catcggcgtg 660
tccgcgtga ttgcccaact gtcgatgacg cgcgcctaca aagtcggcga caaattcacg 720
gttgccctgc tttcctatat gaccgtcggt ttttccgctc tgtctgccgc attttttctg 780
gccgaagagc ttttctggca ggaaatactc ggtatgtgca tcatcatcct cagcgggtatt 840
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taa 903

<210> 544
<211> 300
<212> PRT
<213> *Neisseria meningitidis*

<400> 544
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1 5 10 15
Ala Ala Ala Cys Phe Thr Ile Met Asn Val Leu Ile Lys Glu Ala Ser
20 25 30
Ala Lys Phe Ala Leu Gly Ser Gly Glu Leu Val Phe Trp Arg Met Leu
35 40 45
Phe Ser Thr Val Ala Leu Gly Ala Ala Ala Val Leu Arg Arg Asp Thr
50 55 60
Phe Arg Thr Pro His Trp Lys Asn His Leu Asn Arg Ser Met Val Gly
65 70 75 80
Thr Gly Ala Met Leu Leu Leu Phe Tyr Ala Val Thr His Leu Pro Leu
85 90 95
Ala Thr Gly Val Thr Leu Ser Tyr Thr Ser Ser Ile Phe Leu Ala Val
100 105 110

Phe Ser Phe Leu Ile Leu Lys Glu Arg Ile Ser Val Tyr Thr Gln Ala
115 120 125
Val Leu Leu Leu Gly Phe Ala Gly Val Val Leu Leu Leu Asn Pro Ser
130 135 140
Phe Arg Ser Gly Gln Glu Thr Ala Ala Leu Ala Gly Leu Ala Gly Gly
145 150 155 160
Ala Met Ser Gly Trp Ala Tyr Leu Lys Val Arg Glu Leu Ser Leu Ala
165 170 175
Gly Glu Pro Gly Trp Arg Val Val Phe Tyr Leu Ser Val Thr Gly Val
180 185 190
Ala Met Ser Ser Val Trp Ala Thr Leu Thr Gly Trp His Thr Leu Ser
195 200 205
Phe Pro Ser Ala Val Tyr Leu Ser Cys Ile Gly Val Ser Ala Leu Ile
210 215 220
Ala Gln Leu Ser Met Thr Arg Ala Tyr Lys Val Gly Asp Lys Phe Thr
225 230 235 240
Val Ala Ser Leu Ser Tyr Met Thr Val Val Phe Ser Ala Leu Ser Ala
245 250 255
Ala Phe Phe Leu Ala Glu Glu Leu Phe Trp Gln Glu Ile Leu Gly Met
260 265 270
Cys Ile Ile Ile Leu Ser Gly Ile Leu Ser Ser Ile Arg Pro Thr Ala
275 280 285
Phe Lys Gln Arg Leu Gln Ser Leu Phe Arg Gln Arg
290 295 300

<210> 545
<211> 8
<212> DNA
<213> Neisseria gonorrhoeae

<220>
<221> misc_feature
<222> (1)..(8)
<223> N= Unknown

<400> 545
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<210> 546

<211> 506
<212> PRT
<213> Neisseria gonorrhoeae

<400> 546

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 Gln Gly Leu His Leu His His Phe His Gln Lys Val Gly Lys Cys Gly
 20 25 30
 Ile Ile Gly Phe Gly Ile His Ile Phe Pro Thr Leu Leu Pro Ala Ala
 35 40 45
 Gln Gly Ile Leu Asp Ile Gln Leu Gly Leu Phe Arg Ile Asp Phe Ala
 50 55 60
 Ala Leu Ala Val Tyr Arg Arg Thr Gln Val Asp Phe Ile His Thr Val
 65 70 75 80
 Ile Asp Gly Ile Ala Ser Asp Gln Ala Phe Ser Glu Val Val Gln Ile
 85 90 95
 Leu Arg Arg Leu Asn Leu Gly His Phe Thr Asp Thr His Leu Ile Ala
 100 105 110
 Gln Ala Arg Arg Phe Ile Ala Asp Phe Gly Asn Ile Arg Pro Met Arg
 115 120 125
 Arg Gly Glu Ala Lys Thr Phe Cys Arg Cys Phe Arg Phe Asp Gly Ile
 130 135 140
 Asp Gly Ile His Gly Asp Phe Arg Gln Cys Gly His Ile Asn Arg Leu
 145 150 155 160
 Ala Pro Gly Lys Asp Cys Arg Asn Gly Lys Arg Asp Lys Val Phe Phe
 165 170 175
 His Thr Arg His Tyr Asn Gln Val Cys Leu Glu Lys Thr Asn Cys Ser
 180 185 190
 Ala Arg Lys Ile Lys Phe Arg His Gln Lys Gln Ala Lys Thr His Ser
 195 200 205
 Thr Ser Leu Ala Ala Arg Phe Thr Ile Arg Pro Ser Leu Ser Gln Arg
 210 215 220
 Pro Phe Met Asp Thr Ala Lys Lys Asp Ile Leu Gly Ser Gly Trp Met
 225 230 235 240
 Leu Val Ala Ala Ala Cys Phe Thr Val Met Asn Val Leu Ile Lys Glu
 245 250 255
 Ala Ser Ala Lys Phe Ala Leu Gly Ser Gly Glu Leu Val Phe Trp Arg
 260 265 270
 Met Leu Phe Ser Thr Val Thr Leu Gly Ala Ala Ala Val Leu Arg Arg
 275 280 285
 Asp Thr Phe Arg Thr Pro His Trp Lys Asn His Leu Asn Arg Ser Met

290	295	300
Val Gly Thr Gly Ala Met Leu Leu Leu Phe Tyr Ala Val Thr His Leu		
305	310	315 320
Pro Leu Thr Thr Gly Val Thr Leu Ser Tyr Thr Ser Ser Ile Phe Leu		
	325	330 335
Ala Val Phe Ser Phe Leu Ile Leu Lys Glu Arg Ile Ser Val Tyr Thr		
	340	345 350
Gln Ala Val Leu Leu Leu Gly Phe Ala Gly Val Val Leu Leu Leu Asn		
	355	360 365
Pro Ser Phe Arg Ser Gly Gln Glu Pro Ala Ala Leu Ala Gly Leu Ala		
	370	375 380
Gly Gly Ala Met Ser Gly Trp Ala Tyr Leu Lys Val Arg Glu Leu Ser		
385	390	395 400
Leu Ala Gly Glu Pro Gly Trp Arg Val Val Phe Tyr Leu Ser Ala Thr		
	405	410 415
Gly Val Ala Met Ser Ser Val Trp Ala Thr Leu Thr Gly Trp His Thr		
	420	425 430
Leu Ser Phe Pro Ser Ala Val Tyr Leu Ser Gly Ile Gly Val Ser Ala		
	435	440 445
Leu Ile Ala Gln Leu Ser Met Thr Arg Ala Tyr Lys Val Gly Asp Lys		
	450	455 460
Phe Thr Val Ala Ser Leu Ser Tyr Met Thr Val Val Phe Ser Ala Leu		
465	470	475 480
Ser Ala Ala Phe Phe Leu Gly Glu Glu Leu Phe Trp Gln Glu Ile Leu		
	485	490 495
Gly Met Cys Ile Ile Ile Ser Ala Ala Phe		
	500	505

<210> 547
 <211> 903
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 547	
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gaattggtct tttggcgcat gctgttttca accgttacgc tcggtgctgc cgccgtattg	180
cggcgcgaca ccttcgcgac gccccattgg aaaaaccact taaaccgcag tatggtcggg	240
acgggggcga tgctgctgct gttttacgcg gtaacgcac tgcccttgac aaccggcggt	300
accctgagtt acacctcgtc gatttttttg gcggtatttt ccttcctgat tttgaaagaa	360
cggatttccg ttacacgcga ggcggtgctg ctcccttggt ttgccggcgt ggtattgctg	420
cttaatccct cgttccgcag cggtcaggaa ccggcggcac tcgccgggct ggccggcggc	480

gcgatgtccg	gctgggcgta	tttgaaagt	cgcgaaactgt	ctttggcggg	cgaacccggc	540
tggcgcgctcg	tgttttacct	ttccgcaacc	ggcgtggcga	tgtcgtcggg	ttgggcgacg	600
ctgaccggct	ggcacaccct	gtcctttcca	tggcgagttt	atctgtcggg	catcggcgctg	660
tccgcgctga	ttgcccact	gtcgatgacg	cgcgccctaca	aagtcggcga	caaattcacg	720
gttgccctcgc	tttctatat	gaccgtcgtc	ttttccgccc	tgtctgccgc	attttttctg	780
ggcgaagagc	ttttctggca	ggaaatactc	ggtatgtgca	tcattatcct	cagcggcatt	840
ttgagcagca	tccgccccat	tgctttcaaa	cagcggctgc	aagccctctt	ccgccaaga	900
taa						903

<210> 548
 <211> 300
 <212> PRT
 <213> *Neisseria gonorrhoeae*

<400> 548

Met	Asp	Thr	Ala	Lys	Lys	Asp	Ile	Leu	Gly	Ser	Gly	Trp	Met	Leu	Val
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Ala	Ala	Ala	Cys	Phe	Thr	Val	Met	Asn	Val	Leu	Ile	Lys	Glu	Ala	Ser
			20					25					30		

Ala	Lys	Phe	Ala	Leu	Gly	Ser	Gly	Glu	Leu	Val	Phe	Trp	Arg	Met	Leu
		35					40					45			

Phe	Ser	Thr	Val	Thr	Leu	Gly	Ala	Ala	Ala	Val	Leu	Arg	Arg	Asp	Thr
	50					55					60				

Phe	Arg	Thr	Pro	His	Trp	Lys	Asn	His	Leu	Asn	Arg	Ser	Met	Val	Gly
65					70					75				80	

Thr	Gly	Ala	Met	Leu	Leu	Phe	Tyr	Ala	Val	Thr	His	Leu	Pro	Leu	
			85					90					95		

Thr	Thr	Gly	Val	Thr	Leu	Ser	Tyr	Thr	Ser	Ser	Ile	Phe	Leu	Ala	Val
		100						105					110		

Phe	Ser	Phe	Leu	Ile	Leu	Lys	Glu	Arg	Ile	Ser	Val	Tyr	Thr	Gln	Ala
		115					120					125			

Val	Leu	Leu	Leu	Gly	Phe	Ala	Gly	Val	Val	Leu	Leu	Leu	Asn	Pro	Ser
	130					135					140				

Phe	Arg	Ser	Gly	Gln	Glu	Pro	Ala	Ala	Leu	Ala	Gly	Leu	Ala	Gly	Gly
145					150					155				160	

Ala	Met	Ser	Gly	Trp	Ala	Tyr	Leu	Lys	Val	Arg	Glu	Leu	Ser	Leu	Ala
			165						170					175	

Gly	Glu	Pro	Gly	Trp	Arg	Val	Val	Phe	Tyr	Leu	Ser	Ala	Thr	Gly	Val
		180						185					190		

Ala	Met	Ser	Ser	Val	Trp	Ala	Thr	Leu	Thr	Gly	Trp	His	Thr	Leu	Ser
		195					200					205			

Phe	Pro	Ser	Ala	Val	Tyr	Leu	Ser	Gly	Ile	Gly	Val	Ser	Ala	Leu	Ile
	210						215				220				

Ala Gln Leu Ser Met Thr Arg Ala Tyr Lys Val Gly Asp Lys Phe Thr
225 230 235 240

Val Ala Ser Leu Ser Tyr Met Thr Val Val Phe Ser Ala Leu Ser Ala
245 250 255

Ala Phe Phe Leu Gly Glu Glu Leu Phe Trp Gln Glu Ile Leu Gly Met
260 265 270

Cys Ile Ile Ile Leu Ser Gly Ile Leu Ser Ser Ile Arg Pro Ile Ala
275 280 285

Phe Lys Gln Arg Leu Gln Ala Leu Phe Arg Gln Arg
290 295 300

<210> 549
<211> 706
<212> DNA
<213> Neisseria meningitidis

<400> 549
atgaagcggc gtatagccgt cttcgtcctg ttcccgcaga taatccgagt tttgggacaa 60
ctgttgccga aaatcgtaa tacagttccg gcacatcgga tgctcttcca gattttcggg 120
atgttctttt tcttcataca ccagcaatat ctgcccggga tcgccgaaat cgattcccca 180
tgccgcatcg tgttcgggtgc gctcctcttc cgtcatctgc ccgcgcattg cctgtatggt 240
aaagccgccc taggggatgc cgttgacac gaacatccag tcgctgatgt cgtcaaccgg 300
aacgcaaacg ctttcgcctt gttcgacatt ggtcagttcg ccsggttcat tggtcagcac 360
accgtaaata taaagaccgt caaaataaat atcgtcgatc cacatatgtt cgcaaatttc 420
gccgtcttcg ccgtctttgga aaaaaggac tttgaccatg gcaaaatcca aggcggaaat 480
aatgcggcgg cggtcccaaa aaagctcgcg ccaaaaatat ttgaatgttt tacgggcgcg 540
ttcgtcggca cggtttaccg gttcgtctgc ctgttctaca taataaatga cggaatcgcc 600
catcatatct gctcctcaac gtgtacggtt tctgtttgca ccttactgcg gctttctgcc 660
ktcggcatcc gattcggatt tgaaaagttc mmrwyattcg gaatag 706

<210> 550
<211> 234
<212> PRT
<213> Neisseria meningitidis

<220>
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<222> (115)..(115)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (231)..(232)
<223> Xaa= any amino acid

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1 5 10 15

Val Leu Gly Gln Leu Leu Pro Lys Ile Val Asn Thr Val Pro Ala His

20					25					30						
Arg	Met	Leu	Phe	Gln	Ile	Phe	Gly	Met	Phe	Phe	Phe	Phe	Phe	Ile	His	Gln
35					40					45						
Gln	Tyr	Leu	Pro	Gly	Ile	Ala	Glu	Ile	Asp	Ser	Pro	Cys	Gly	Ile	Val	
50					55					60						
Phe	Gly	Ala	Leu	Leu	Phe	Arg	His	Leu	Pro	Ala	His	Cys	Leu	Tyr	Gly	
65					70					75					80	
Lys	Ala	Ala	Val	Gly	Asp	Ala	Val	Ala	His	Glu	His	Pro	Val	Ala	Asp	
85					90					95						
Val	Val	Asn	Arg	Asn	Ala	Asn	Ala	Phe	Ala	Leu	Phe	Asp	Ile	Gly	Gln	
100					105					110						
Phe	Ala	Xaa	Phe	Ile	Val	Gln	His	Thr	Val	Asn	Ile	Lys	Thr	Val	Lys	
115					120					125						
Ile	Asn	Ile	Val	Asp	Pro	His	Met	Phe	Ala	Asn	Phe	Ala	Val	Phe	Ala	
130					135					140						
Val	Leu	Glu	Lys	Arg	Asp	Phe	Asp	His	Gly	Lys	Ile	Gln	Gly	Gly	Asn	
145					150					155					160	
Asn	Ala	Ala	Ala	Phe	Pro	Lys	Lys	Leu	Ala	Pro	Lys	Ile	Phe	Glu	Cys	
165					170					175						
Phe	Thr	Gly	Ala	Phe	Val	Gly	Thr	Val	Tyr	Arg	Phe	Val	Cys	Leu	Phe	
180					185					190						
Tyr	Ile	Ile	Asn	Asp	Gly	Ile	Ala	His	His	Ser	Ala	Pro	Gln	Arg	Val	
195					200					205						
Arg	Tyr	Leu	Phe	Ala	Pro	Tyr	Cys	Gly	Phe	Leu	Pro	Ser	Ala	Ser	Asp	
210					215					220						
Ser	Asp	Leu	Lys	Ser	Ser	Xaa	Xaa	Ser	Glu							
225					230											

<210> 551
 <211> 708
 <212> DNA
 <213> Neisseria meningitidis

<400> 551
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 caactgttgc cgaaaatcgt caatacagtt ccggcacatc ggatgctctt ccagattttc 120
 gggatgttct ttttcttcat acaccagcaa tatctgcccg ggatcgccga aatcgattcc 180
 ccatgcggca tcgtgttcgg tgcgtcctc ttccgtcatc tgcccgcgca ttgcctgtat 240
 ggtaaagccg ccgtagggga tgccgttgca cacgaacatc cagtcgctga tgcgtcaac 300
 cggaacgcaa acgctttcgc cttgttcgac attggtcagt tcgccgggtt cattgttcag 360
 cacaccgtaa atataaagac cgtcaaaata aatatcgctg atccacatat gttcgcaaat 420
 ttcgccgtct tcgccgtctt ggaaaaaagg gactttgacc atggcaaaat ccaaggcgga 480

aataatgcgg	cggcggttccc	aaaaaagctc	gcgccaaaaa	tatttgaatg	ttttacgggc	540
gcgttcgtcg	gcacgggttta	cgggttcgtc	tgctgttct	acataataaa	tgacggaatc	600
gcccatcatt	ctgctcctca	acgtgtacgg	tatctgtttg	caccttactg	cggctttctg	660
ccttcggcat	ccgattcgga	tttgaaaagt	tccaaatatt	cggaatag		708

<210> 552
 <211> 235
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 552

Met	Met	Lys	Arg	Arg	Ile	Ala	Val	Phe	Val	Leu	Phe	Pro	Gln	Ile	Ile
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Arg	Val	Leu	Gly	Gln	Leu	Leu	Pro	Lys	Ile	Val	Asn	Thr	Val	Pro	Ala
		20					25						30		

His	Arg	Met	Leu	Phe	Gln	Ile	Phe	Gly	Met	Phe	Phe	Phe	Phe	Ile	His
	35						40					45			

Gln	Gln	Tyr	Leu	Pro	Gly	Ile	Ala	Glu	Ile	Asp	Ser	Pro	Cys	Gly	Ile
	50					55					60				

Val	Phe	Gly	Ala	Leu	Leu	Phe	Arg	His	Leu	Pro	Ala	His	Cys	Leu	Tyr
65					70					75					80

Gly	Lys	Ala	Ala	Val	Gly	Asp	Ala	Val	Ala	His	Glu	His	Pro	Val	Ala
			85					90						95	

Asp	Val	Val	Asn	Arg	Asn	Ala	Asn	Ala	Phe	Ala	Leu	Phe	Asp	Ile	Gly
			100					105						110	

Gln	Phe	Ala	Gly	Phe	Ile	Val	Gln	His	Thr	Val	Asn	Ile	Lys	Thr	Val
		115					120					125			

Lys	Ile	Asn	Ile	Val	Asp	Pro	His	Met	Phe	Ala	Asn	Phe	Ala	Val	Phe
	130						135					140			

Ala	Val	Leu	Glu	Lys	Arg	Asp	Phe	Asp	His	Gly	Lys	Ile	Gln	Gly	Gly
145					150					155					160

Asn	Asn	Ala	Ala	Ala	Phe	Pro	Lys	Lys	Leu	Ala	Pro	Lys	Ile	Phe	Glu
			165						170					175	

Cys	Phe	Thr	Gly	Ala	Phe	Val	Gly	Thr	Val	Tyr	Arg	Phe	Val	Cys	Leu
		180						185					190		

Phe	Tyr	Ile	Ile	Asn	Asp	Gly	Ile	Ala	His	His	Ser	Ala	Pro	Gln	Arg
		195					200					205			

Val	Arg	Tyr	Leu	Phe	Ala	Pro	Tyr	Cys	Gly	Phe	Leu	Pro	Ser	Ala	Ser
	210						215				220				

Asp	Ser	Asp	Leu	Lys	Ser	Ser	Lys	Tyr	Ser	Glu
225					230					235

<210> 553
 <211> 708
 <212> DNA
 <213> Neisseria meningitidis

<220>
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 <222> (117)..(117)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (221)..(221)
 <223> N= Unknown

<220>
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 <222> (427)..(427)
 <223> N= Unknown

<220>
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 <222> (476)..(476)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (478)..(479)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (481)..(482)
 <223> N= Unknown

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 gggatgttct ttttcttcat acaccagcaa tacctgcccg ggatcgccga aatcgattcc 180
 ccatgcggca tcgtgttcgg tacgtctctc ttccgtcatc ngtcacgca ttgcctgtat 240
 ggtaaagccg ccgtagggaa tgccgttgca cacgaacatc cagtcgctga tgcgtcaac 300
 cggaacgcaa acgctttcgc cttgttcgac attggtcagt tcgccgggtt cattgttcag 360
 caccgcataa atgtaaagac cgtcaaaata aatatcgctc atccacatat gttcgcaa 420
 ttgcgcntct tcgccgtctt ggaaaaaagg gctttgacca tggcaaaatc taaggngnna 480
 nngatgcggc ggcgttccca aaaaagctcg cgccaaaaat atttgaatgt tttgcgggcg 540
 cgttcgccgg cacggtttac cggtttgtct gcctgttcta cataataaat gacggaatcg 600
 cccatcatat ctgctcctca acgtgtacgg tatctgtttg caccttactg cggctttctg 660
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<210> 554
 <211> 233
 <212> PRT
 <213> Neisseria meningitidis

<220>
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<222> (39)..(39)
 <223> Xaa= any amino acid

<220>
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 <222> (74)..(74)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (143)..(143)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (159)..(161)
 <223> Xaa= any amino acid

<400> 554
 Met Met Lys Arg Arg Ile Ala Val Phe Val Leu Leu Met Gln Lys Ile
 1 5 10 15
 Arg Ile Leu Gly Gln Leu Leu Pro Lys Ile Val Asn Thr Val Pro Ala
 20 25 30
 His Arg Met Leu Phe Gln Xaa Phe Gly Met Phe Phe Phe Phe Ile His
 35 40 45
 Gln Gln Tyr Leu Pro Gly Ile Ala Glu Ile Asp Ser Pro Cys Gly Ile
 50 55 60
 Val Phe Gly Thr Leu Leu Phe Arg His Xaa Ser Thr His Cys Leu Tyr
 65 70 75 80
 Gly Lys Ala Ala Val Gly Asn Ala Val Ala His Glu His Pro Val Ala
 85 90 95
 Asp Val Val Asn Arg Asn Ala Asn Ala Phe Ala Leu Phe Asp Ile Gly
 100 105 110
 Gln Phe Ala Gly Phe Ile Val Gln His Ala Ile Asn Val Lys Thr Val
 115 120 125
 Lys Ile Asn Ile Val Asp Pro His Met Phe Ala Asn Phe Ala Xaa Phe
 130 135 140
 Ala Val Leu Glu Lys Arg Ala Leu Thr Met Ala Lys Ser Lys Xaa Xaa
 145 150 155 160
 Xaa Met Arg Arg Arg Ser Gln Lys Ser Ser Arg Gln Lys Tyr Leu Asn
 165 170 175
 Val Leu Arg Ala Arg Ser Pro Ala Arg Phe Thr Gly Leu Ser Ala Cys
 180 185 190

Ser Thr Met Thr Glu Ser Pro Ile Ile Ser Ala Pro Gln Arg Val Arg

195

200

205

Tyr Leu Phe Ala Pro Tyr Cys Gly Phe Leu Pro Ser Ala Ser Asp Ser
210 215 220

Asp Leu Lys Ser Ser Lys Tyr Ser Glu
225 230

<210> 555
<211> 708
<212> DNA
<213> Neisseria gonorrhoeae

<400> 555
atgatgaagc ggcgtatagc cgtcttcgctc ctgctcatgc agaaaatccg gattttggga 60
caactgttgc cgaaaatcgt caatacagtt ccggcacatc ggatgctctt ccaaattttc 120
gggatgttct ttttcttcat acaccggcaa tacctgcccg ggatcgccga aatcgattcc 180
ccaggcggta tcgtgttcgg tacgctctc ttcgctcatc tgtccgcgca ttgcctgtac 240
ggtaaagccg ccgtagggga tgccgttgca cacgaacatc cagtcgctga tgtcgccaac 300
cggaacgcaa acgctttcgc cttgttcgac attggtcagt ccgccgggtt cattgttcag 360
cacaccgtaa atataaagac cgtcaaaata aatatcgctc atccacatat gttcgcaaatt 420
ttcgccgtct tcgccgtctt ggaaaaaagg gactttgacc atggcaaaat ccaaggcgga 480
aataatgcgg cggcgttccc aaaaaagctc gcgccaaaag tatttgaatg ttttacgggc 540
gcgttcgccg gcacgggtta ccggttcgctc tgctgttct acataataaa tgacggaatc 600
gcccatcata ctgctcctca acgtgtacgg tatctgtttg caccttaccg cgggttttcta 660
cctccggcat ccgattcgga ttgaaaagt tccaaatatt cggaatag 708

<210> 556
<211> 235
<212> PRT
<213> Neisseria gonorrhoeae

<400> 556
Met Met Lys Arg Arg Ile Ala Val Phe Val Leu Leu Met Gln Lys Ile
1 5 10 15
Arg Ile Leu Gly Gln Leu Leu Pro Lys Ile Val Asn Thr Val Pro Ala
20 25 30
His Arg Met Leu Phe Gln Ile Phe Gly Met Phe Phe Phe Phe Ile His
35 40 45
Arg Gln Tyr Leu Pro Gly Ile Ala Glu Ile Asp Ser Pro Gly Gly Ile
50 55 60
Val Phe Gly Thr Leu Leu Phe Arg His Leu Ser Ala His Cys Leu Tyr
65 70 75 80
Gly Lys Ala Ala Val Gly Asp Ala Val Ala His Glu His Pro Val Ala
85 90 95
Asp Val Ala Asn Arg Asn Ala Asn Ala Phe Ala Leu Phe Asp Ile Gly
100 105 110

Gln Ser Ala Gly Phe Ile Val Gln His Thr Val Asn Ile Lys Thr Val
 115 120 125

Lys Ile Asn Ile Val Asp Pro His Met Phe Ala Asn Phe Ala Val Phe
 130 135 140

Ala Val Leu Glu Lys Arg Asp Phe Asp His Gly Lys Ile Gln Gly Gly
 145 150 155 160

Asn Asn Ala Ala Ala Phe Pro Lys Lys Leu Ala Pro Lys Val Phe Glu
 165 170 175

Cys Phe Thr Gly Ala Phe Ala Gly Thr Val Tyr Arg Phe Val Cys Leu
 180 185 190

Phe Tyr Ile Ile Asn Asp Gly Ile Ala His His Thr Ala Pro Gln Arg
 195 200 205

Val Arg Tyr Leu Phe Ala Pro Tyr Arg Gly Phe Leu Pro Pro Ala Ser
 210 215 220

Asp Ser Asp Leu Lys Ser Ser Lys Tyr Ser Glu
 225 230 235

<210> 557
 <211> 446
 <212> DNA
 <213> Neisseria meningitidis

<400> 557
 atggaaaata tggtaacggt ttcaaaaatc agaccgcttt tggcaatcgc cgccgccgcg 60
 ttgcttgccg cctgcggaag gcgggaaata atgctgtccg caagccggtg caaacgccca 120
 aaccgccgcg agtggtcggg ttggcactcg gtggcggcgc atctaaagga tttgcccacg 180
 taggtattat taagggtttg aaagaaaacg gtattcctgt gaaggtgggt accggcacct 240
 ccgcaggttc gattgtcggc aacctttttg catcggttat gtcgcccgcg cgctcgaat 300
 tggagccga aattttaggc aaaaccgatt tggtcgattt aaccttgtcc accaatgggt 360
 ttatcaaagg cgcaaagctg caaaattaca tcaaccgaaa actccgcggc atgcagattc 420
 agcagtttcc catcaaattt gccgcc 446

<210> 558
 <211> 149
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (25)..(25)
 <223> Xaa= any amino acid

<400> 558
 Met Glu Asn Met Val Thr Phe Ser Lys Ile Arg Pro Leu Leu Ala Ile
 1 5 10 15

Ala Ala Ala Ala Leu Leu Ala Ala Xaa Arg Thr Ala Gly Asn Asn Ala
 20 25 30

Val Arg Lys Pro Val Gln Thr Ala Lys Pro Ala Ala Val Val Gly Leu
35 40 45

Ala Leu Gly Gly Gly Ala Ser Lys Gly Phe Ala His Val Gly Ile Ile
50 55 60

Lys Val Leu Lys Glu Asn Gly Ile Pro Val Lys Val Val Thr Gly Thr
65 70 75 80

Ser Ala Gly Ser Ile Val Gly Asn Leu Phe Ala Ser Gly Met Ser Pro
85 90 95

Asp Arg Leu Glu Leu Glu Ala Glu Ile Leu Gly Lys Thr Asp Leu Val
100 105 110

Asp Leu Thr Leu Ser Thr Asn Gly Phe Ile Lys Gly Ala Lys Leu Gln
115 120 125

Asn Tyr Ile Asn Arg Lys Leu Arg Gly Met Gln Ile Gln Gln Phe Pro
130 135 140

Ile Lys Phe Ala Ala
145

<210> 559
<211> 903
<212> DNA
<213> Neisseria meningitidis

<400> 559
atggaaaata tggtaacgtt ttcaaaaatc agaccgcttt tggcaatcgc cgccgcccgcg 60
ttgcttgccg cctgcggcac ggcgggaaat aatgctgtcc gcaagccggt gcaaaccgcc 120
aaaccgcgcg cagtggtcgg tttggcactc ggtggcggcg catctaaagg atttgcccat 180
gtagggtatta ttaaggtttt gaaagaaaac ggtattcctg tgaagggtgg taccggcaca 240
tcggcagggt cgattgtcgg cagccttttt gcatcgggta tgcgcccga ccgcctcgaa 300
ttggaagccg aaattttagg caaaaccgat ttggtcgatt taaccttgtc caccagtgg 360
tttatcaaag gcgaaaagct gcaaaattac atcaaccgaa aagtcggcgg caggcagatt 420
cagcagtttc ccatcaaatt tgccgcccgt gctactgatt ttgaaaccgg caaggccgtc 480
gctttcaatc aggggaatgc cgggcaggct gtgcgcgctt ccgcccgcct tcccaatgtg 540
ttccaaccgc ttatcatcgg caggcataca tatgttgacg gcggtctgtc gcagcccgtg 600
cccgctcagt ccgcccggcg gcagggggcg aatttcgtga ttgccgtcga tatttccgcc 660
cgtccgggca aaaacatcag ccaaggtttc ttctcttate tcgatcagac gctgaacgta 720
atgagcgttt ctgcgttgca aaatgagttg gggcaggcgg atgtgggttat caaaccgcag 780
gttttggtt tgggtgcagt cggcggtatc gatcagaaaa aacgcgccat ccggttgggt 840
gaggaggcag cacgtgccgc attgcctgaa atcaaaccgca aactggcggc ataccgttat 900
tga 903

<210> 560
<211> 300
<212> PRT
<213> Neisseria meningitidis

<400> 560
Met Glu Asn Met Val Thr Phe Ser Lys Ile Arg Pro Leu Leu Ala Ile
1 5 10 15

Ala Ala Ala Ala Leu Leu Ala Ala Cys Gly Thr Ala Gly Asn Asn Ala
 20 25 30

Val Arg Lys Pro Val Gln Thr Ala Lys Pro Ala Ala Val Val Gly Leu
 35 40 45

Ala Leu Gly Gly Gly Ala Ser Lys Gly Phe Ala His Val Gly Ile Ile
 50 55 60

Lys Val Leu Lys Glu Asn Gly Ile Pro Val Lys Val Val Thr Gly Thr
 65 70 75 80

Ser Ala Gly Ser Ile Val Gly Ser Leu Phe Ala Ser Gly Met Ser Pro
 85 90 95

Asp Arg Leu Glu Leu Glu Ala Glu Ile Leu Gly Lys Thr Asp Leu Val
 100 105 110

Asp Leu Thr Leu Ser Thr Ser Gly Phe Ile Lys Gly Glu Lys Leu Gln
 115 120 125

Asn Tyr Ile Asn Arg Lys Val Gly Gly Arg Gln Ile Gln Gln Phe Pro
 130 135 140

Ile Lys Phe Ala Ala Val Ala Thr Asp Phe Glu Thr Gly Lys Ala Val
 145 150 155 160

Ala Phe Asn Gln Gly Asn Ala Gly Gln Ala Val Arg Ala Ser Ala Ala
 165 170 175

Ile Pro Asn Val Phe Gln Pro Val Ile Ile Gly Arg His Thr Tyr Val
 180 185 190

Asp Gly Gly Leu Ser Gln Pro Val Pro Val Ser Ala Ala Arg Arg Gln
 195 200 205

Gly Ala Asn Phe Val Ile Ala Val Asp Ile Ser Ala Arg Pro Gly Lys
 210 215 220

Asn Ile Ser Gln Gly Phe Phe Ser Tyr Leu Asp Gln Thr Leu Asn Val
 225 230 235 240

Met Ser Val Ser Ala Leu Gln Asn Glu Leu Gly Gln Ala Asp Val Val
 245 250 255

Ile Lys Pro Gln Val Leu Asp Leu Gly Ala Val Gly Gly Phe Asp Gln
 260 265 270

Lys Lys Arg Ala Ile Arg Leu Gly Glu Glu Ala Ala Arg Ala Ala Leu
 275 280 285

Pro Glu Ile Lys Arg Lys Leu Ala Ala Tyr Arg Tyr
 290 295 300

<210> 561
 <211> 903
 <212> DNA
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature
 <222> (624)..(624)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (626)..(629)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (631)..(631)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (634)..(634)
 <223> Xaa= any amino acid

<400> 561
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 aaaccgcgcg cagtggtcgcg tttggcactc ggtggcggcg catctaaagg atttgcccat 180
 gtaggtatta ttaaggtttt gaaagaaaac ggtattcctg tgaaggtggt taccggcaca 240
 tcggcaggtt cgatagtcgcg cagccttttt gcatcgggta tgtcgcccga ccgcctcgaa 300
 ttggaagccg aaatttttagg taaaaccgat ttggtcgatt taaccttgtc caccagtggg 360
 tttatcaaag gcgaaaagct gcaaaattac atcaaccgaa aagtcggcgcg caggcggatt 420
 cagcagtttc ccatcaaatt tgccgcgcgtt gctactgatt ttgaaaccgg caaggccgtc 480
 gctttcaatc aagggaatgc cgggcaggct gtgcgcgcgtt ccgcgcgccat tcccaatgtg 540
 ttccaaccgc ttatcatcgcg caggcataca tatgttgacg gcggtctgtc gcagcccggtg 600
 ccgcgtcagtg ccgcccggcg gcangnnnng natntcgtga ttgccgtcga tatttccgcc 660
 cgtccgagca aaaacatcag ccaaggcttc ttctcttate tcgatcagac gctgaacgta 720
 atgagcgttt ccgcgttgca aaatgagttg gggcaggcgcg atgtggttat caaaccgcag 780
 gttttggatt tgggtgcagt cggcggattc gatcagaaaa aacgcgccat ccggttgggt 840
 gaggaggcag cacgtgccgc attgcctgaa atcaaacgca aactggcggc ataccgttat 900
 tga 903

<210> 562
 <211> 300
 <212> PRT
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature
 <222> (208)..(212)
 <223> Xaa= any amino acid

<400> 562
 Met Glu Asn Met Val Thr Phe Ser Lys Ile Arg Pro Leu Leu Ala Ile

1	5	10	15
Ala Ala Ala Ala Leu Leu Ala Ala Cys Gly Thr Ala Gly Asn Asn Ala	20	25	30
Ala Arg Lys Pro Val Gln Thr Ala Lys Pro Ala Ala Val Val Gly Leu			
35	40	45	
Ala Leu Gly Gly Gly Ala Ser Lys Gly Phe Ala His Val Gly Ile Ile	50	55	60
Lys Val Leu Lys Glu Asn Gly Ile Pro Val Lys Val Val Thr Gly Thr	65	70	75 80
Ser Ala Gly Ser Ile Val Gly Ser Leu Phe Ala Ser Gly Met Ser Pro	85	90	95
Asp Arg Leu Glu Leu Glu Ala Glu Ile Leu Gly Lys Thr Asp Leu Val	100	105	110
Asp Leu Thr Leu Ser Thr Ser Gly Phe Ile Lys Gly Glu Lys Leu Gln	115	120	125
Asn Tyr Ile Asn Arg Lys Val Gly Gly Arg Arg Ile Gln Gln Phe Pro	130	135	140
Ile Lys Phe Ala Ala Val Ala Thr Asp Phe Glu Thr Gly Lys Ala Val	145	150	155 160
Ala Phe Asn Gln Gly Asn Ala Gly Gln Ala Val Arg Ala Ser Ala Ala	165	170	175
Ile Pro Asn Val Phe Gln Pro Val Ile Ile Gly Arg His Thr Tyr Val	180	185	190
Asp Gly Gly Leu Ser Gln Pro Val Pro Val Ser Ala Ala Arg Arg Xaa	195	200	205
Xaa Xaa Xaa Xaa Val Ile Ala Val Asp Ile Ser Ala Arg Pro Ser Lys	210	215	220
Asn Ile Ser Gln Gly Phe Phe Ser Tyr Leu Asp Gln Thr Leu Asn Val	225	230	235 240
Met Ser Val Ser Ala Leu Gln Asn Glu Leu Gly Gln Ala Asp Val Val	245	250	255
Ile Lys Pro Gln Val Leu Asp Leu Gly Ala Val Gly Gly Phe Asp Gln	260	265	270
Lys Lys Arg Ala Ile Arg Leu Gly Glu Glu Ala Ala Arg Ala Ala Leu	275	280	285
Pro Glu Ile Lys Arg Lys Leu Ala Ala Tyr Arg Tyr	290	295	300

<210> 563
 <211> 903
 <212> DNA
 <213> *Neisseria gonorrhoeae*

<400> 563

atggaaaata	tggtaacgtt	ttcaaaaatc	agatcatttt	tggaatcgc	cgccgccgcg	60
ttgcttgccg	cctgcggtac	ggcgggaaac	aatgccgccc	gcaagccggt	gcaaaccgcc	120
aaacccgccg	cagtggtcgc	tttggcactc	ggtggcggcg	catctaaagg	atttgcccat	180
ataggaattg	ttaaggtttt	gaaagaaaac	ggtattcctg	tgaagggtgt	taccggcaca	240
tcggcaggtt	cgatagtcgg	cagccttttg	gcacgcggta	tgtcgccgga	ccgcctcgaa	300
ttggaagccg	agatttttag	taaaaccgat	ttagtcgatt	taaccttgtc	caccagtggg	360
tttatcaaag	gcgaaaagct	gcaaaattac	atcaaccgaa	aagtcggcgg	caggcagatt	420
cagcagtttc	ccatcaaatt	tgccgccggt	gccactgatt	ttgaaaccgg	caaggccgtc	480
gctttcaatc	aagggaatgc	cgggcaggcg	gttcgtgctt	ccgccgccat	tcccaatgtg	540
ttccagccag	tcatcatcgg	caggcacaaa	tatgttgacg	gcggtctgtc	gcagcccgtg	600
ccgctcagtg	ccgctcggcg	gcagggggcg	aatttcgtga	ttgccgtcga	tatttcgcga	660
cgtccgagca	aaaatgtcgg	tcaaggtttc	ttctcttata	tcgatcagac	gctgaacgtg	720
atgagcgttt	ccgtggttgc	aaacgagttg	gggcaggcgg	atgtggttat	caaaccgcag	780
gttttgatt	tgggtgcagt	cgccggattc	gatcagaaaa	agcgcgccat	ccggttgggc	840
gaggaggcag	cacgtgccgc	attgcctgaa	atcaaacgca	aactggcggc	ataccgttat	900
tga						903

<210> 564
 <211> 300
 <212> PRT
 <213> *Neisseria gonorrhoeae*

<400> 564

Met	Glu	Asn	Met	Val	Thr	Phe	Ser	Lys	Ile	Arg	Ser	Phe	Leu	Ala	Ile	1	5	10	15
Ala	Ala	Ala	Ala	Leu	Leu	Ala	Ala	Cys	Gly	Thr	Ala	Gly	Asn	Asn	Ala	20	25	30	
Ala	Arg	Lys	Pro	Val	Gln	Thr	Ala	Lys	Pro	Ala	Ala	Val	Val	Ala	Leu	35	40	45	
Ala	Leu	Gly	Gly	Gly	Ala	Ser	Lys	Gly	Phe	Ala	His	Ile	Gly	Ile	Val	50	55	60	
Lys	Val	Leu	Lys	Glu	Asn	Gly	Ile	Pro	Val	Lys	Val	Val	Thr	Gly	Thr	65	70	75	80
Ser	Ala	Gly	Ser	Ile	Val	Gly	Ser	Leu	Leu	Ala	Ser	Gly	Met	Ser	Pro	85	90	95	
Asp	Arg	Leu	Glu	Leu	Glu	Ala	Glu	Ile	Leu	Gly	Lys	Thr	Asp	Leu	Val	100	105	110	
Asp	Leu	Thr	Leu	Ser	Thr	Ser	Gly	Phe	Ile	Lys	Gly	Glu	Lys	Leu	Gln	115	120	125	
Asn	Tyr	Ile	Asn	Arg	Lys	Val	Gly	Gly	Arg	Gln	Ile	Gln	Gln	Phe	Pro				

130	135	140
Ile Lys Phe Ala Ala Val Ala Thr Asp Phe Glu Thr Gly Lys Ala Val		
145	150	155 160
Ala Phe Asn Gln Gly Asn Ala Gly Gln Ala Val Arg Ala Ser Ala Ala		
	165	170 175
Ile Pro Asn Val Phe Gln Pro Val Ile Ile Gly Arg His Lys Tyr Val		
	180	185 190
Asp Gly Gly Leu Ser Gln Pro Val Pro Val Ser Ala Ala Arg Arg Gln		
	195	200 205
Gly Ala Asn Phe Val Ile Ala Val Asp Ile Ser Ala Arg Pro Ser Lys		
	210	215 220
Asn Val Gly Gln Gly Phe Phe Ser Tyr Leu Asp Gln Thr Leu Asn Val		
225	230	235 240
Met Ser Val Ser Val Leu Gln Asn Glu Leu Gly Gln Ala Asp Val Val		
	245	250 255
Ile Lys Pro Gln Val Leu Asp Leu Gly Ala Val Gly Gly Phe Asp Gln		
	260	265 270
Lys Lys Arg Ala Ile Arg Leu Gly Glu Glu Ala Ala Arg Ala Ala Leu		
	275	280 285
Pro Glu Ile Lys Arg Lys Leu Ala Ala Tyr Arg Tyr		
	290	295 300

<210> 565
 <211> 369
 <212> DNA
 <213> Neisseria meningitidis

<400> 565	
atgtttcgtt tacaattcag gctgtttccc cttttgcgaa ccgccatgca catcctgttg	60
accgccctgc tcaaatgcct ctcccctgctg ccgctttcct gtctgcacac gctgggaaac	120
cggctcggac atctggcggt ttacctttta aaggaagacc gcgcgcgcat cgtcgccmat	180
atgcggcagg cgggtttgaa ccccgacccc aaaacggtca aagccgtttt tgcggaaacg	240
gcaaaaggcg gtttggaact tgcccccgcg tttttcagaa aaccggaaga catagaaaca	300
atgttcaaag cggtagacgg ctgggaacat gtgcagcagg ctttggacaa acacgaaggg	360
ctgctattc	369

<210> 566
 <211> 123
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (60)..(60)
 <223> Xaa= any amino acid

<400> 566

Met Phe Arg Leu Gln Phe Arg Leu Phe Pro Pro Leu Arg Thr Ala Met
1 5 10 15

His Ile Leu Leu Thr Ala Leu Leu Lys Cys Leu Ser Leu Leu Pro Leu
20 25 30

Ser Cys Leu His Thr Leu Gly Asn Arg Leu Gly His Leu Ala Phe Tyr

35

40

45

Leu Leu Lys Glu Asp Arg Ala Arg Ile Val Ala Xaa Met Arg Gln Ala
50 55 60

Gly Leu Asn Pro Asp Pro Lys Thr Val Lys Ala Val Phe Ala Glu Thr
65 70 75 80

Ala Lys Gly Gly Leu Glu Leu Ala Pro Ala Phe Phe Arg Lys Pro Glu
85 90 95

Asp Ile Glu Thr Met Phe Lys Ala Val His Gly Trp Glu His Val Gln
100 105 110

Gln Ala Leu Asp Lys His Glu Gly Leu Leu Phe
115 120

<210> 567

<211> 897

<212> DNA

<213> Neisseria meningitidis

<400> 567

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cggctcggac	atctggcggt	ttacctttta	aaggaagacc	gcgcgcgcac	cgtcgccaat	180
atgcggcagg	cgggtttgaa	ccccgacccc	aaaacgggtca	aagccgtttt	tgcggaacg	240
gcaaaaggcg	gtttggaact	tgccccgcg	tttttcagaa	aaccggaaga	catagaaaca	300
atgttcaaag	cgggtacacg	ctgggaacat	gtgcagcagg	ctttggacaa	acacgaagg	360
ctgctattca	tcacgcgcga	catcggcagc	tacgatttgg	gcggacgcta	catcagccag	420
cagcttccgt	tcccgtgac	cgccatgtac	aaacgcgcga	aatcaaagc	gatagacaaa	480
atcatgcagg	cgggcagggt	tcgcggcaaa	ggaaaaaccg	cgcctaccag	catacaagg	540
gtcaaacaaa	tcataaaagc	cctgcgttcg	ggcgaagcaa	ccatcgtcct	gcccgaacc	600
gtccccctccc	ctcaagaagg	cggggaaggc	gtatgggtgg	atttcttcgg	caaacctgcc	660
tataccatga	cgtggcggc	aaaattggca	cacgtcaaag	gcgtgaaaac	cctgtttttc	720
tgctgcgaac	gcctgcctgg	cggacaagg	ttcgatttgc	acatccgccc	cgtccaagg	780
gaattgaacg	gcgacaaagc	ccatgatgcc	gccgtgttca	accgcaatgc	cgaatattgg	840
atacgccgtt	ttccgacgca	gtatctgttt	atgtacaacc	gctacaaaat	gccgtaa	897

<210> 568

<211> 298

<212> PRT

<213> Neisseria meningitidis

<400> 568

Met Phe Arg Leu Gln Phe Arg Leu Phe Pro Pro Leu Arg Thr Ala Met

1	5	10	15
His Ile Leu Leu Thr Ala Leu Leu Lys Cys Leu Ser Leu Leu Pro Leu	20	25	30
Ser Cys Leu His Thr Leu Gly Asn Arg Leu Gly His Leu Ala Phe Tyr	35	40	45
Leu Leu Lys Glu Asp Arg Ala Arg Ile Val Ala Asn Met Arg Gln Ala	50	55	60
Gly Leu Asn Pro Asp Pro Lys Thr Val Lys Ala Val Phe Ala Glu Thr	65	70	75
Ala Lys Gly Gly Leu Glu Leu Ala Pro Ala Phe Phe Arg Lys Pro Glu	85	90	95
Asp Ile Glu Thr Met Phe Lys Ala Val His Gly Trp Glu His Val Gln	100	105	110
Gln Ala Leu Asp Lys His Glu Gly Leu Leu Phe Ile Thr Pro His Ile	115	120	125
Gly Ser Tyr Asp Leu Gly Gly Arg Tyr Ile Ser Gln Gln Leu Pro Phe	130	135	140
Pro Leu Thr Ala Met Tyr Lys Pro Pro Lys Ile Lys Ala Ile Asp Lys	145	150	155
Ile Met Gln Ala Gly Arg Val Arg Gly Lys Gly Lys Thr Ala Pro Thr	165	170	175
Ser Ile Gln Gly Val Lys Gln Ile Ile Lys Ala Leu Arg Ser Gly Glu	180	185	190
Ala Thr Ile Val Leu Pro Asp His Val Pro Ser Pro Gln Glu Gly Gly	195	200	205
Glu Gly Val Trp Val Asp Phe Phe Gly Lys Pro Ala Tyr Thr Met Thr	210	215	220
Leu Ala Ala Lys Leu Ala His Val Lys Gly Val Lys Thr Leu Phe Phe	225	230	235
Cys Cys Glu Arg Leu Pro Gly Gly Gln Gly Phe Asp Leu His Ile Arg	245	250	255
Pro Val Gln Gly Glu Leu Asn Gly Asp Lys Ala His Asp Ala Ala Val	260	265	270
Phe Asn Arg Asn Ala Glu Tyr Trp Ile Arg Arg Phe Pro Thr Gln Tyr	275	280	285
Leu Phe Met Tyr Asn Arg Tyr Lys Met Pro	290	295	

<210> 569
 <211> 897
 <212> DNA
 <213> Neisseria meningitidis

<400> 569
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 cggctcggac atctggcggt ttacctttta aaggaagacc gcgcgcgcgc catcgccaat 180
 atgcgtcagg caggcatgaa tccccacccc aaaacgggtca aagccgtttt tgcggaaacg 240
 gcaaaaggcg gtttggaact tgcccccgcg tttttcagaa aaccggaaga catagaaaca 300

atgttcaaag cggtacacgg ctgggaacat gtgcagcagg ctttggacaa acacgaaggg 360
 ctgctattca tcacgccgca catcggcagc tacgatttgg gcggacgcta catcagccag 420
 cagcttcctg tcccgtgac cgccatgtac aaaccgccga aaatcaaagc gatagacaaa 480
 atcatgcagg cgggcagggt tcgcggcaaa ggaaaaaccg cgcctaccag catacaaggg 540
 gtcaaacaaa tcatcaaagc cctgcgttcg ggccaagcaa ccatcgtcct gcccgaaccac 600
 gtccccctccc ctcaagaagg cggggaaggc gtatgggtgg atttcttcgg caaacctgcc 660
 tataccatga cgctggcggc aaaattggca cagctcaaag gcgtgaaaac cctgtttttc 720
 tgctgcgaac gcctgcctgg cggacaaggt ttcgatttgc acatccgccc cgtccaaggg 780
 gaattgaacg gcgacaaagc ccatgatgcc gccgtgttca accgcaatgc cgaatattgg 840
 atacgccgtt ttccgacgca gtatctgttt atgtacaacc gctacaaaat gccgtaa 897

<210> 570
 <211> 298
 <212> PRT
 <213> Neisseria meningitidis

<400> 570
 Met Phe Arg Leu Gln Phe Arg Leu Phe Pro Pro Leu Arg Thr Ala Met
 1 5 10 15
 His Ile Leu Leu Thr Ala Leu Leu Lys Cys Leu Ser Leu Leu Pro Leu
 20 25 30
 Ser Cys Leu His Thr Leu Gly Asn Arg Leu Gly His Leu Ala Phe Tyr
 35 40 45
 Leu Leu Lys Glu Asp Arg Ala Arg Ile Val Ala Asn Met Arg Gln Ala
 50 55 60
 Gly Leu Asn Pro Asp Pro Lys Thr Val Lys Ala Val Phe Ala Glu Thr
 65 70 75 80
 Ala Lys Gly Gly Leu Glu Leu Ala Pro Ala Phe Phe Arg Lys Pro Glu
 85 90 95
 Asp Ile Glu Thr Met Phe Lys Ala Val His Gly Trp Glu His Val Gln
 100 105 110
 Gln Ala Leu Asp Lys His Glu Gly Leu Leu Phe Ile Thr Pro His Ile
 115 120 125
 Gly Ser Tyr Asp Leu Gly Gly Arg Tyr Ile Ser Gln Gln Leu Pro Phe
 130 135 140

Pro Leu Thr Ala Met Tyr Lys Pro Pro Lys Ile Lys Ala Ile Asp Lys
145 150 155 160

Ile Met Gln Ala Gly Arg Val Arg Gly Lys Gly Lys Thr Ala Pro Thr
165 170 175

Ser Ile Gln Gly Val Lys Gln Ile Ile Lys Ala Leu Arg Ser Gly Glu
180 185 190

Ala Thr Ile Val Leu Pro Asp His Val Pro Ser Pro Gln Glu Gly Gly
195 200 205

Glu Gly Val Trp Val Asp Phe Phe Gly Lys Pro Ala Tyr Thr Met Thr
210 215 220

Leu Ala Ala Lys Leu Ala His Val Lys Gly Val Lys Thr Leu Phe Phe
225 230 235 240

Cys Cys Glu Arg Leu Pro Gly Gly Gln Gly Phe Asp Leu His Ile Arg
245 250 255

Pro Val Gln Gly Glu Leu Asn Gly Asp Lys Ala His Asp Ala Ala Val
260 265 270

Phe Asn Arg Asn Ala Glu Tyr Trp Ile Arg Arg Phe Pro Thr Gln Tyr
275 280 285

Leu Phe Met Tyr Asn Arg Tyr Lys Met Pro
290 295

<210> 571
<211> 894
<212> DNA
<213> Neisseria gonorrhoeae

<400> 571
atgttttcgtt tacaattcag gctgtttccc cctttgcgaa ccgccatgca catcctgttg 60
accgccctgc tcaaatgcct ctccctgctg tcgctttcct gtctgcacac gctgggaaac 120
cggctcggac atctggcggt ttacctttta aaggaagacc gcgcgcgcat cgtcgccaat 180
atgcggcagg cgggtttgaa ccccgacacg cagacgggtca aagccgtttt tgcggaaacg 240
gcaaaatgcg gtttggaaact tgcccccgcg tttttcaaaa aaccggaaga catcgaaaca 300
atgttcaaag cggtagacgg ctgggaacac gtgcagcagg ctttggacaa gggcgaagg 360
ctgctgttca tcacgccgca catcggcagc tacgatttgg gcggacgcta catcagccag 420
cagcttccgt tccacctgac cgccatgtac aagccgccga aaatcaaagc gatagacaaa 480
atcatgcagg cgggcagggt gcgcggcaaa ggcaaaaccg cgcccaccgg catacaagg 540
gtcaaacaaa tcatcaaggc cctgcgcgcg ggcgaggcaa ccatcatcct gcccgaccac 600
gtcccttctc cgcaggaagg cggcggcggt tgggcggatt ttttcggcaa acctgcatac 660
accatgacac tggcggcaaa attggcacac gtcaaaaggc tgaaaaccct gtttttctgc 720
tgcaaacgcc tgcccagcgg acaaggcttc gtgttgacac tccgccccgt ccaaggggaa 780
ttgaacggca acaaaagccca cgatgccgcc gtgttcaacc gcaataccga atattggata 840
cgccgttttc cgacgcagta tctgtttatg tacaaccgct ataaaacgcc gtaa 894

<210> 572
<211> 297
<212> PRT

<213> Neisseria gonorrhoeae

<400> 572

Met	Phe	Arg	Leu	Gln	Phe	Arg	Leu	Phe	Pro	Pro	Leu	Arg	Thr	Ala	Met
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His	Ile	Leu	Leu	Thr	Ala	Leu	Leu	Lys	Cys	Leu	Ser	Leu	Leu	Ser	Leu
			20					25					30		
Ser	Cys	Leu	His	Thr	Leu	Gly	Asn	Arg	Leu	Gly	His	Leu	Ala	Phe	Tyr
		35					40				45				
Leu	Leu	Lys	Glu	Asp	Arg	Ala	Arg	Ile	Val	Ala	Asn	Met	Arg	Gln	Ala
			50				55						60		
Gly	Leu	Asn	Pro	Asp	Thr	Gln	Thr	Val	Lys	Ala	Val	Phe	Ala	Glu	Thr
65					70					75				80	
Ala	Lys	Cys	Gly	Leu	Glu	Leu	Ala	Pro	Ala	Phe	Phe	Lys	Lys	Pro	Glu
				85					90					95	
Asp	Ile	Glu	Thr	Met	Phe	Lys	Ala	Val	His	Gly	Trp	Glu	His	Val	Gln
			100					105					110		
Gln	Ala	Leu	Asp	Lys	Gly	Glu	Gly	Leu	Leu	Phe	Ile	Thr	Pro	His	Ile
			115					120				125			
Gly	Ser	Tyr	Asp	Leu	Gly	Gly	Arg	Tyr	Ile	Ser	Gln	Gln	Leu	Pro	Phe
	130					135					140				
His	Leu	Thr	Ala	Met	Tyr	Lys	Pro	Pro	Lys	Ile	Lys	Ala	Ile	Asp	Lys
145					150					155				160	
Ile	Met	Gln	Ala	Gly	Arg	Val	Arg	Gly	Lys	Gly	Lys	Thr	Ala	Pro	Thr
				165					170					175	
Gly	Ile	Gln	Gly	Val	Lys	Gln	Ile	Ile	Lys	Ala	Leu	Arg	Ala	Gly	Glu
			180					185					190		
Ala	Thr	Ile	Ile	Leu	Pro	Asp	His	Val	Pro	Ser	Pro	Gln	Glu	Gly	Gly
		195					200					205			
Gly	Val	Trp	Ala	Asp	Phe	Phe	Gly	Lys	Pro	Ala	Tyr	Thr	Met	Thr	Leu
	210					215					220				
Ala	Ala	Lys	Leu	Ala	His	Val	Lys	Gly	Val	Lys	Thr	Leu	Phe	Phe	Cys
225					230					235					240
Cys	Glu	Arg	Leu	Pro	Asp	Gly	Gln	Gly	Phe	Val	Leu	His	Ile	Arg	Pro
				245					250					255	
Val	Gln	Gly	Glu	Leu	Asn	Gly	Asn	Lys	Ala	His	Asp	Ala	Ala	Val	Phe
			260					265					270		
Asn	Arg	Asn	Thr	Glu	Tyr	Trp	Ile	Arg	Arg	Phe	Pro	Thr	Gln	Tyr	Leu

275

280

285

Phe Met Tyr Asn Arg Tyr Lys Thr Pro
290 295

<210> 573
<211> 567
<212> DNA
<213> Neisseria meningitidis

<400> 573
gcgtgggtcgg cgggcgaatc gtggcgtgtg ttaatggaaa gtgaaacgtg gcatgcggtg 60
tggaatactt tgcgtttctc ggcggcggcg gtgtatgcgg cagcggtttt ggggtgtggtg 120
tatgcggcgc cggcgcggcg gtcggcgtgg atgcgcgggc tgatgtttta gccgtttatg 180

gtgtcgccgg tttgtgtttc ggcgggctgt ctgctgcttt atccgcagtg gacggcttcg 240
ttgccgttgc tgctggcgat gtatgcgctg ctggcgatc cgtttgtggc aaaagatgtt 300
ttatcagcct gggatgcact gccgccggat tacggcaggg cggcggcggg tttgggtgca 360
aacggctttc agacggcatg ccgcatacag ttccccctct tgaaaccggc gttgcggcgc 420
ggctctgactt tggcggcggc aacctgcgtg ggcgaatttg cggcgacatt gtttctgtcg 480
cgtccggaat ggcagacgct gacgactttg atttatgcct atttgggacg cgcggtgag 540
gataattacg cgcgggcgat ggtgctg 567

<210> 574
<211> 189
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (57)..(57)
<223> Xaa= any amino acid

<400> 574
Ala Trp Ser Ala Gly Glu Ser Trp Arg Val Leu Met Glu Ser Glu Thr
1 5 10 15
Trp His Ala Val Trp Asn Thr Leu Arg Phe Ser Ala Ala Val Tyr
20 25 30
Ala Ala Ala Val Leu Gly Val Val Tyr Ala Ala Pro Ala Arg Arg Ser
35 40 45
Ala Trp Met Arg Gly Leu Met Phe Xaa Pro Phe Met Val Ser Pro Val
50 55 60
Cys Val Ser Ala Gly Val Leu Leu Leu Tyr Pro Gln Trp Thr Ala Ser
65 70 75 80
Leu Pro Leu Leu Ala Met Tyr Ala Leu Leu Ala Tyr Pro Phe Val
85 90 95
Ala Lys Asp Val Leu Ser Ala Trp Asp Ala Leu Pro Pro Asp Tyr Gly
100 105 110
Arg Ala Ala Ala Gly Leu Gly Ala Asn Gly Phe Gln Thr Ala Cys Arg

Ser Ala Phe Leu Ala Val Met Val Val Ala Pro Leu Trp Ala Val Ala
 20 25 30

Ala Tyr Asp Gly Leu Ala Trp Arg Ala Val Leu Ser Asp Ala Tyr Met
 35 40 45

Leu Lys Arg Leu Ala Trp Thr Val Phe Gln Ala Ala Ala Thr Cys Val
 50 55 60

Leu Val Leu Pro Leu Gly Val Pro Val Ala Trp Val Leu Ala Arg Leu
 65 70 75 80

Ala Phe Pro Gly Arg Ala Leu Val Leu Arg Leu Leu Met Leu Pro Phe
 85 90 95

Val Met Pro Thr Leu Val Ala Gly Val Gly Val Leu Ala Leu Phe Gly
 100 105 110

Ala Asp Gly Leu Leu Trp Arg Gly Arg Gln Asp Thr Pro Tyr Leu Leu
 115 120 125

Leu Tyr Gly Asn Val Phe Phe Asn Leu Pro Val Leu Val Arg Ala Ala
 130 135 140

Tyr Gln Gly Phe Val Gln Val Pro Ala Ala Arg Leu Gln Thr Ala Arg
 145 150 155 160

Thr Leu Gly Ala Gly Ala Trp Arg Arg Phe Trp Asp Ile Glu Met Pro
 165 170 175

Val Leu Arg Pro Trp Leu Ala Gly Gly Val Cys Leu Val Phe Leu Tyr
 180 185 190

Cys Phe Ser Gly Phe Gly Leu Ala Leu Leu Leu Gly Gly Ser Arg Tyr
 195 200 205

Ala Thr Val Glu Val Glu Ile Tyr Gln Leu Val Met Phe Glu Leu Asp
 210 215 220

Met Ala Val Ala Ser Val Leu Val Trp Leu Val Leu Gly Val Thr Ala
 225 230 235 240

Ala Ala Gly Leu Leu Tyr Ala Trp Phe Gly Arg Arg Ala Val Ser Asp
 245 250 255

Lys Ala Val Ser Pro Val Met Pro Ser Pro Pro Gln Ser Val Gly Glu
 260 265 270

Tyr Val Leu Leu Ala Phe Ala Ala Ala Val Leu Ser Val Cys Cys Leu
 275 280 285

Phe Pro Leu Leu Ala Ile Val Val Lys Ala Trp Ser Ala Gly Glu Ser
 290 295 300

Trp Arg Val Leu Met Glu Ser Glu Thr Trp Gln Ala Val Trp Asn Thr
 305 310 315 320
 Leu Arg Phe Ser Ala Ala Ala Val Tyr Ala Ala Ala Val Leu Gly Val
 325 330 335
 Val Tyr Ala Ala Ala Ala Arg Arg Ser Ala Trp Met Arg Gly Leu Met
 340 345 350
 Phe Leu Pro Phe Met Val Ser Pro Val Cys Val Ser Ala Gly Val Leu
 355 360 365
 Leu Leu Tyr Pro Gln Trp Thr Ala Ser Leu Pro Leu Leu Leu Ala Met
 370 375 380
 Tyr Ala Leu Leu Ala Tyr Pro Phe Val Ala Lys Asp Val Leu Ser Ala
 385 390 395 400
 Trp Asp Ala Leu Pro Pro Asp Tyr Gly Arg Ala Ala Ala Gly Leu Gly
 405 410 415
 Ala Asn Gly Phe Gln Thr Ala Cys Arg Ile Thr Phe Pro Leu Leu Lys
 420 425 430
 Pro Ala Leu Arg Arg Gly Leu Thr Leu Ala Ala Ala Thr Cys Val Gly
 435 440 445
 Glu Phe Ala Ala Thr Leu Phe Leu Ser Arg Pro Glu Trp Gln Thr Leu
 450 455 460
 Thr Thr Leu Ile Tyr Ala Tyr Leu Gly Arg Ala Gly Glu Asp Asn Tyr
 465 470 475 480
 Ala Arg Ala Met Val Leu Thr Leu Leu Leu Ala Ala Phe Ala Leu Gly
 485 490 495
 Ile Phe Leu Leu Leu Asp Gly Gly Glu Gly Gly Lys Gln Thr Glu Thr
 500 505 510

Leu

<210> 577
 <211> 1542
 <212> DNA
 <213> Neisseria meningitidis

<220>
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 <222> (350)..(350)
 <223> N= Unknown

<220>
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 <222> (406)..(406)
 <223> N= Unknown

<220>
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<222> (479)..(479)
<223> N= Unknown

<220>
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<222> (693)..(693)
<223> N= Unknown

<220>
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<222> (707)..(707)
<223> N= Unknown

<220>
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<222> (717)..(717)
<223> N= Unknown

<220>
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<222> (774)..(774)
<223> N= Unknown

<220>
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<222> (825)..(825)
<223> N= Unknown

<220>
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<222> (848)..(848)
<223> N= Unknown

<220>
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<222> (869)..(869)
<223> N= Unknown

<220>
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<222> (961)..(961)
<223> N= Unknown

<220>
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<222> (1111)..(1111)
<223> N= Unknown

<220>
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<222> (1203)..(1203)
<223> N= Unknown

<220>
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 <222> (1366)..(1366)
 <223> N= Unknown

<220>
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 <222> (1376)..(1376)
 <223> N= Unknown

<220>
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 <222> (1414)..(1414)
 <223> N= Unknown

<220>
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 <222> (1431)..(1431)

<223> N= Unknown

<220>
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 <222> (1491)..(1491)
 <223> N= Unknown

<400> 577
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 gcggcaatgg tcgttgcgcc tttgtgggcg gtggcgggcg atgacgggtt ggcgtggcgc 120
 gcgggtgctgt cggatgccta tatgctcaaa cgtttgccgt ggacgggtatt tcaggcagcg 180
 gcaacctgtg tgctggtgct gcctttgggc gtgcctgtcg cgtgggtgct ggcgcggtcg 240
 gcgtttccgg ggcgggcttt ggtgctgcgc ctgctgatgc tgcttttgt gatgcccacg 300
 ttggtggcgg gcgtgggcgt gctggctctg ttccggggcg acggcctgtg gtggcgcggc 360
 tggcaggata cgcggtatct gttgtgtgac ggcaatgtgt ttttnacct tcctgtgttg 420
 gtcagggcgg catatcaggg gtttgtgcaa gtgcctgcgg cacggcttca gacggcacng 480
 acattgggcg cggggcggtg gcggcggttt tgggacattg aaatgcccgt tttgcgcccg 540
 tggcttgccg gcggcggtgt ccttgtcttc ctgtattgtt tttcgggggt cgggctggca 600
 ttgctgctgg gcggcagccg ttatgccacg gtcgaagtgg aaatttacca gttggtcatg 660
 ttcgaaactc atattggcgg tgcctcgggt ctngtgtggc tgggtgtngg ggtaacngcg 720
 gcggcagggg tgctgtatgc gtggttcggc aggcgcgcgg ttccggataa ggcngtttcc 780
 cctgtgatgc cgtgcgcgcc gcagtcgggtc ggggaatatg tgctnctggc gtttgcggcg 840
 gcggtgtngt ctgtgtgctg cctgtttcnt ttgttggcaa ttgttgtgaa agcgtgggtcg 900
 gccggcgaat cgtggcgtgt gttaatggaa agtgaaacgt ggcaggcggg gtggaatact 960
 ntgcgcttct cggcggcggc ggtgtatgcg gcggcggttt tgggtgtggg gtatgcggcg 1020
 gcggcgcggc ggtcggcggt gatgcgcggg ctgatgtttt tgccggttat ggtgtcgccg 1080
 gtttgtgttt cggcggggtg gctgctgctt natccgcagt ggacggcttc gttgccgctg 1140
 ctgctggcga tgtatgcgct gctggcggtat ccgtttgtgg caaaagatgt tttatcagcc 1200
 tngnatgcac tgccgcggga ttacggcagg gcggcgggcg gtttgggtgc aaacggcttt 1260
 cagacggcat gccgcacac gttccccctc ttgaaaccgg cgttgcggcg cggctctgact 1320
 ttggcgggcg caacctgcgt gggcgaattt gcggcaacct tgttcntgtc gcgtcncgag 1380
 tggcagacgc tgacgacttt gatttatgcc tatntgggac gcgcgggtga ngataattac 1440
 gcgcgggcga tgggtgctgac attgctgttg gcggcggttc cgtgggtat nttcctgctg 1500
 ttggacggcg gcgaaggcgg aaaacggacg gaaacgttat aa 1542

<210> 578

<211> 513
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (117)..(117)
<223> Xaa= any amino acid

<220>
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<222> (136)..(136)
<223> Xaa= any amino acid

<220>
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<222> (160)..(160)
<223> Xaa= any amino acid

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<221> misc_feature
<222> (236)..(236)
<223> Xaa= any amino acid

<220>
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<222> (283)..(283)
<223> Xaa= any amino acid

<220>
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<222> (290)..(290)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (321)..(321)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (371)..(371)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (401)..(401)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (456)..(456)
<223> Xaa= any amino acid

<220>

<221> misc_feature
 <222> (459)..(459)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (472)..(472)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (477)..(477)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (497)..(497)
 <223> Xaa= any amino acid

<400> 578
 Met Asp Gly Arg Arg Trp Ala Val Trp Gly Ala Phe Ala Leu Leu Pro

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Ser Ala Phe Leu Ala Ala Met Val Val Ala Pro Leu Trp Ala Val Ala	20	25	30
Ala Tyr Asp Gly Leu Ala Trp Arg Ala Val Leu Ser Asp Ala Tyr Met	35	40	45
Leu Lys Arg Leu Ala Trp Thr Val Phe Gln Ala Ala Ala Thr Cys Val	50	55	60
Leu Val Leu Pro Leu Gly Val Pro Val Ala Trp Val Leu Ala Arg Leu	65	70	75
Ala Phe Pro Gly Arg Ala Leu Val Leu Arg Leu Leu Met Leu Pro Phe	85	90	95
Val Met Pro Thr Leu Val Ala Gly Val Gly Val Leu Ala Leu Phe Gly	100	105	110
Ala Asp Gly Leu Xaa Trp Arg Gly Trp Gln Asp Thr Pro Tyr Leu Leu	115	120	125
Leu Tyr Gly Asn Val Phe Phe Xaa Leu Pro Val Leu Val Arg Ala Ala	130	135	140
Tyr Gln Gly Phe Val Gln Val Pro Ala Ala Arg Leu Gln Thr Ala Xaa	145	150	155
Thr Leu Gly Ala Gly Ala Trp Arg Arg Phe Trp Asp Ile Glu Met Pro	165	170	175
Val Leu Arg Pro Trp Leu Ala Gly Gly Val Cys Leu Val Phe Leu Tyr	180	185	190

Cys Phe Ser Gly Phe Gly Leu Ala Leu Leu Leu Gly Gly Ser Arg Tyr
 195 200 205
 Ala Thr Val Glu Val Glu Ile Tyr Gln Leu Val Met Phe Glu Leu Asp
 210 215 220
 Met Ala Val Ala Ser Val Leu Val Trp Leu Val Xaa Gly Val Thr Ala
 225 230 235 240
 Ala Ala Gly Leu Leu Tyr Ala Trp Phe Gly Arg Arg Ala Val Ser Asp
 245 250 255
 Lys Ala Val Ser Pro Val Met Pro Ser Pro Pro Gln Ser Val Gly Glu
 260 265 270
 Tyr Val Leu Leu Ala Phe Ala Ala Ala Val Xaa Ser Val Cys Cys Leu
 275 280 285
 Phe Xaa Leu Leu Ala Ile Val Val Lys Ala Trp Ser Ala Gly Glu Ser
 290 295 300
 Trp Arg Val Leu Met Glu Ser Glu Thr Trp Gln Ala Val Trp Asn Thr
 305 310 315 320
 Xaa Arg Phe Ser Ala Ala Ala Val Tyr Ala Ala Ala Val Leu Gly Val
 325 330 335
 Val Tyr Ala Ala Ala Ala Arg Arg Ser Ala Trp Met Arg Gly Leu Met
 340 345 350
 Phe Leu Pro Phe Met Val Ser Pro Val Cys Val Ser Ala Gly Val Leu
 355 360 365
 Leu Leu Xaa Pro Gln Trp Thr Ala Ser Leu Pro Leu Leu Leu Ala Met
 370 375 380
 Tyr Ala Leu Leu Ala Tyr Pro Phe Val Ala Lys Asp Val Leu Ser Ala
 385 390 395 400
 Xaa Asp Ala Leu Pro Pro Asp Tyr Gly Arg Ala Ala Ala Gly Leu Gly
 405 410 415
 Ala Asn Gly Phe Gln Thr Ala Cys Arg Ile Thr Phe Pro Leu Leu Lys
 420 425 430
 Pro Ala Leu Arg Arg Gly Leu Thr Leu Ala Ala Ala Thr Cys Val Gly
 435 440 445
 Glu Phe Ala Ala Thr Leu Phe Xaa Ser Arg Xaa Glu Trp Gln Thr Leu
 450 455 460
 Thr Thr Leu Ile Tyr Ala Tyr Xaa Gly Arg Ala Gly Xaa Asp Asn Tyr
 465 470 475 480

Ala Arg Ala Met Val Leu Thr Leu Leu Leu Ala Ala Phe Ala Leu Gly
485 490 495

Xaa Phe Leu Leu Leu Asp Gly Gly Glu Gly Gly Lys Arg Thr Glu Thr
500 505 510

Leu

<210> 579
<211> 8
<212> DNA
<213> Neisseria gonorrhoeae

<220>
<221> misc_feature
<222> (1)..(8)
<223> N= Unknown

<400> 579
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8

<210> 580

<211> 513
<212> PRT
<213> Neisseria gonorrhoeae

<400> 580
Met Asp Gly Arg Cys Trp Ala Val Arg Gly Ala Phe Ser Leu Leu Pro
1 5 10 15

Ser Ala Phe Leu Ala Val Met Val Val Ala Pro Leu Trp Ala Val Ala
20 25 30

Ala Tyr Asp Gly Leu Ala Trp Arg Ala Val Leu Ser Asp Ala Tyr Met
35 40 45

Leu Lys Arg Leu Ala Trp Thr Val Phe Gln Ala Ala Ala Thr Cys Val
50 55 60

Leu Val Leu Pro Leu Gly Val Pro Val Ala Trp Val Leu Ala Arg Leu
65 70 75 80

Ala Phe Pro Gly Arg Ala Leu Val Leu Arg Leu Leu Met Leu Pro Phe
85 90 95

Val Met Pro Thr Leu Val Ala Gly Val Gly Val Leu Ala Leu Phe Gly
100 105 110

Ala Asp Gly Leu Leu Trp Arg Gly Arg Gln Asp Thr Pro Tyr Leu Leu
115 120 125

Leu Tyr Gly Asn Val Phe Phe Asn Leu Pro Val Leu Val Arg Ala Ala
130 135 140

Tyr Gln Gly Phe Ala Gln Val Pro Ala Ala Arg Leu Gln Thr Ala Arg
 145 150 155 160
 Thr Leu Gly Ala Gly Ala Trp Arg Pro Phe Trp Asp Ile Glu Met Pro
 165 170 175
 Val Leu Arg Pro Trp Leu Ala Gly Gly Val Cys Leu Val Phe Leu Tyr
 180 185 190
 Cys Phe Ser Gly Phe Gly Leu Ala Leu Leu Leu Gly Gly Ser Arg Tyr
 195 200 205
 Ala Thr Val Glu Val Glu Ile Tyr Gln Leu Val Met Phe Glu Leu Asp
 210 215 220
 Met Ala Gly Ala Ser Ala Leu Val Trp Leu Val Leu Gly Val Thr Ala
 225 230 235 240
 Ala Ala Gly Leu Leu Tyr Ala Trp Phe Gly Arg Arg Ala Val Ser Asp
 245 250 255
 Lys Ala Val Ser Pro Val Met Pro Ser Pro Pro Gln Ser Val Gly Glu
 260 265 270
 Tyr Val Leu Leu Ala Phe Ser Val Ala Val Leu Ser Val Cys Cys Leu
 275 280 285
 Phe Pro Leu Ser Ala Ile Val Val Lys Ala Trp Ser Ala Gly Glu Ser
 290 295 300
 Arg Arg Val Leu Met Glu Ser Glu Thr Trp Gln Ala Val Trp Asn Thr
 305 310 315 320
 Leu Arg Phe Ser Ala Ala Ala Val Phe Ala Ala Ala Val Leu Gly Val
 325 330 335
 Val Tyr Ala Ala Ala Ala Arg Arg Leu Val Trp Met Arg Gly Leu Val
 340 345 350
 Phe Leu Pro Phe Met Val Ser Pro Val Cys Val Ser Ala Gly Val Leu
 355 360 365
 Leu Leu Tyr Pro Gly Trp Thr Ala Ser Leu Pro Leu Leu Leu Ala Met
 370 375 380
 Tyr Ala Leu Leu Ala Tyr Pro Phe Val Ala Lys Asp Val Leu Ser Ala
 385 390 395 400
 Trp Asp Ala Leu Pro Pro Asp Tyr Gly Arg Ala Ala Ala Gly Leu Gly
 405 410 415
 Ala Asn Gly Phe Gln Thr Ala Cys Arg Ile Thr Phe Pro Leu Leu Lys
 420 425 430
 Pro Ala Leu Arg Arg Gly Leu Thr Leu Ala Ala Ala Thr Cys Val Gly

435 440 445
 Glu Phe Ala Ala Thr Leu Phe Leu Ser Arg Pro Glu Trp Gln Thr Leu
 450 455 460
 Thr Thr Leu Ile Tyr Ala Tyr Leu Gly Arg Ala Gly Glu Asp Asn Tyr
 465 470 475 480
 Ala Arg Ala Met Val Leu Thr Leu Leu Leu Ser Ala Phe Ala Val Cys
 485 490 495
 Ile Phe Leu Leu Leu Asp Asn Gly Glu Gly Gly Lys Arg Thr Glu Thr
 500 505 510

Leu

<210> 581
 <211> 1542
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 581
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 gcggtaatgg tcgttgcgcc tttgtgggcg gtggcggcgt atgacggttt ggcgtggcgc 120

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 <211> 513
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 582

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Ala Tyr Asp Gly Leu Ala Trp Arg Ala Val Leu Ser Asp Ala Tyr Met
35 40 45

Leu Lys Arg Leu Ala Trp Thr Val Phe Gln Ala Ala Ala Thr Cys Val
50 55 60

Leu Val Leu Pro Leu Gly Val Pro Val Ala Trp Val Leu Ala Arg Leu
65 70 75 80

Ala Phe Pro Gly Arg Ala Leu Val Leu Arg Leu Leu Met Leu Pro Phe
85 90 95

Val Met Pro Thr Leu Val Ala Gly Val Gly Val Leu Ala Leu Phe Gly
100 105 110

Ala Asp Gly Leu Leu Trp Arg Gly Arg Gln Asp Thr Pro Tyr Leu Leu
115 120 125

Leu Tyr Gly Asn Val Phe Phe Asn Leu Pro Val Leu Val Arg Ala Ala

130

135

140

Tyr Gln Gly Phe Ala Gln Val Pro Ala Ala Arg Leu Gln Thr Ala Arg
145 150 155 160

Thr Leu Gly Ala Gly Ala Trp Arg Arg Phe Trp Asp Ile Glu Met Pro
165 170 175

Val Leu Arg Pro Trp Leu Ala Gly Gly Val Cys Leu Val Phe Leu Tyr
180 185 190

Cys Phe Ser Gly Phe Gly Leu Ala Leu Leu Leu Gly Gly Ser Arg Tyr
195 200 205

Ala Thr Val Glu Val Glu Ile Tyr Gln Leu Val Met Phe Glu Leu Asp
210 215 220

Met Ala Gly Ala Ser Ala Leu Val Trp Leu Val Leu Gly Val Thr Ala
225 230 235 240

Ala Ala Gly Leu Leu Tyr Ala Trp Phe Gly Arg Arg Ala Val Ser Asp
245 250 255

Lys Ala Val Ser Pro Val Met Pro Ser Pro Pro Gln Ser Val Gly Glu
260 265 270

Tyr Val Leu Leu Ala Phe Ser Val Ala Val Leu Ser Val Cys Cys Leu
275 280 285

Phe Pro Leu Ser Ala Ile Val Val Lys Ala Trp Ser Ala Gly Glu Ser
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 Arg Arg Val Leu Met Glu Ser Glu Thr Trp Gln Ala Val Trp Asn Thr
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 Leu Arg Phe Ser Ala Ala Val Phe Ala Ala Ala Val Leu Gly Val
 325 330 335
 Val Tyr Ala Ala Ala Arg Arg Leu Val Trp Met Arg Gly Leu Val
 340 345 350
 Phe Leu Pro Phe Met Val Ser Pro Val Cys Val Ser Ala Gly Val Leu
 355 360 365
 Leu Leu Tyr Pro Gly Trp Thr Ala Ser Leu Pro Leu Leu Leu Ala Met
 370 375 380
 Tyr Ala Leu Leu Ala Tyr Pro Phe Val Ala Lys Asp Val Leu Ser Ala
 385 390 395 400
 Trp Asp Ala Leu Pro Pro Asp Tyr Gly Arg Ala Ala Ala Gly Leu Gly
 405 410 415
 Ala Asn Gly Phe Gln Thr Ala Cys Arg Ile Thr Phe Pro Leu Leu Lys
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 Pro Ala Leu Arg Arg Gly Leu Thr Leu Ala Ala Ala Thr Cys Val Gly
 435 440 445
 Glu Phe Ala Ala Thr Leu Phe Leu Ser Arg Pro Glu Trp Gln Thr Leu
 450 455 460
 Thr Thr Leu Ile Tyr Ala Tyr Leu Gly Arg Ala Gly Glu Asp Asn Tyr
 465 470 475 480
 Ala Arg Ala Met Val Leu Thr Leu Leu Leu Ser Ala Phe Ala Val Cys
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 Ile Phe Leu Leu Leu Asp Asn Gly Glu Gly Gly Lys Arg Thr Glu Thr
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Leu

<210> 583
 <211> 261
 <212> DNA
 <213> Neisseria meningitidis

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 atcgtcagcc tgctgacggc tttggcaacc ggtttgccca caggcagcat tgtcaaagac 180
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 <211> 87
 <212> PRT
 <213> Neisseria meningitidis

<400> 584
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 Ile His Ala Leu Leu Thr Leu Val Ile Val Ser Leu Leu Thr Ala Leu
 35 40 45
 Ala Thr Gly Leu Pro Thr Gly Ser Ile Val Lys Asp Ile Leu Val Lys
 50 55 60
 Asn Phe Gly Gly Thr Leu Gly Gly Val Ala Leu Leu Val Gly Leu Gly
 65 70 75 80
 Ala Met Leu Glu Arg Leu Val
 85

<210> 585
 <211> 1386

<212> DNA
 <213> Neisseria meningitidis

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gtctga

1386

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<211> 461
<212> PRT
<213> Neisseria meningitidis

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Ile His Ala Leu Leu Thr Leu Val Ile Val Ser Leu Leu Thr Ala Leu
35 40 45
Ala Thr Gly Leu Pro Thr Gly Ser Ile Val Asn Asp Ile Leu Val Lys
50 55 60
Asn Phe Gly Gly Thr Leu Gly Gly Val Ala Leu Leu Val Gly Leu Gly
65 70 75 80
Ala Met Leu Gly Arg Leu Val Glu Thr Ser Gly Gly Ala Gln Ser Leu
85 90 95
Ala Asp Ala Leu Ile Arg Met Phe Gly Glu Lys Arg Ala Pro Phe Ala
100 105 110
Leu Gly Val Ala Ser Leu Ile Phe Gly Phe Pro Ile Phe Phe Asp Ala
115 120 125
Gly Leu Ile Val Met Leu Pro Ile Val Phe Ala Thr Ala Arg Arg Met
130 135 140
Lys Gln Asp Val Leu Pro Phe Ala Leu Ala Ser Ile Gly Ala Phe Ser
145 150 155 160
Val Met His Val Phe Leu Pro Pro His Pro Gly Pro Ile Ala Ala Ser
165 170 175
Glu Phe Tyr Gly Ala Asn Ile Gly Gln Val Leu Ile Leu Gly Leu Pro
180 185 190
Thr Ala Phe Ile Thr Trp Tyr Phe Ser Gly Tyr Met Leu Gly Lys Val
195 200 205
Leu Gly Arg Thr Ile His Val Pro Val Pro Glu Leu Leu Ser Gly Gly
210 215 220
Thr Gln Asp Asn Asp Leu Pro Lys Glu Pro Ala Lys Ala Gly Thr Val
225 230 235 240
Val Ala Ile Met Leu Ile Pro Met Leu Leu Ile Phe Leu Asn Thr Gly
245 250 255

Val Ser Ala Leu Ile Ser Glu Lys Leu Val Ser Ala Asp Glu Thr Trp
260 265 270
Val Gln Thr Ala Lys Ile Ile Gly Ser Thr Pro Ile Ala Leu Leu Ile
275 280 285
Ser Val Leu Val Ala Leu Phe Val Leu Gly Arg Lys Arg Gly Glu Ser
290 295 300
Gly Ser Ala Leu Glu Lys Thr Val Asp Gly Ala Leu Ala Pro Val Cys
305 310 315 320
Ser Val Ile Leu Ile Thr Gly Ala Gly Gly Met Phe Gly Gly Val Leu
325 330 335
Arg Ala Ser Gly Ile Gly Lys Ala Leu Ala Asp Ser Met Ala Asp Leu
340 345 350
Gly Ile Pro Val Leu Leu Gly Cys Phe Leu Val Ala Leu Ala Leu Arg
355 360 365
Ile Ala Gln Gly Ser Ala Thr Val Ala Leu Thr Thr Ala Ala Ala Leu
370 375 380
Met Ala Pro Ala Val Ala Ala Ala Gly Phe Thr Asp Trp Gln Leu Ala
385 390 395 400
Cys Ile Val Leu Ala Thr Ala Ala Gly Ser Val Gly Cys Ser His Phe
405 410 415
Asn Asp Ser Gly Phe Trp Leu Val Gly Arg Leu Leu Asp Met Asp Val
420 425 430
Pro Thr Thr Leu Lys Thr Trp Thr Val Asn Gln Thr Leu Ile Ala Leu
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Ile Gly Phe Ala Leu Ser Ala Leu Leu Phe Ala Ile Val
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<210> 587

<211> 1386

<212> DNA

<213> Neisseria meningitidis

<400> 587

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gcgaacatcg	gccaagtgtt	gattttgggt	ctgccgaccg	ccttcatcac	atggtatttc	600

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 ttctggctgg tcggcgcct cttggacatg gacgtaccga ccacgtgaa aacctggacg 1320
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<210> 588
 <211> 461
 <212> PRT
 <213> Neisseria meningitidis

<400> 588
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 Ile His Ala Leu Leu Thr Leu Val Ile Val Ser Leu Leu Thr Ala Leu
 35 40 45
 Ala Thr Gly Leu Pro Thr Gly Ser Ile Val Asn Asp Val Leu Val Lys
 50 55 60
 Asn Phe Gly Gly Thr Leu Gly Gly Val Ala Leu Leu Val Gly Leu Gly
 65 70 75 80
 Ala Met Leu Gly Arg Leu Val Glu Thr Ser Gly Gly Ala Gln Ser Leu
 85 90 95
 Ala Asp Ala Leu Ile Arg Met Phe Gly Glu Lys Arg Ala Pro Phe Ala
 100 105 110
 Leu Gly Val Ala Ser Leu Ile Phe Gly Phe Pro Ile Phe Phe Asp Ala
 115 120 125
 Gly Leu Ile Val Met Leu Pro Ile Val Phe Ala Thr Ala Arg Arg Met
 130 135 140
 Lys Gln Asp Val Leu Pro Phe Ala Leu Ala Ser Ile Gly Ala Phe Ser
 145 150 155 160
 Val Met His Val Phe Leu Pro Pro His Pro Gly Pro Ile Ala Ala Ser
 165 170 175
 Glu Phe Tyr Gly Ala Asn Ile Gly Gln Val Leu Ile Leu Gly Leu Pro

180					185					190						
Thr	Ala	Phe	Ile	Thr	Trp	Tyr	Phe	Ser	Gly	Tyr	Met	Leu	Gly	Lys	Val	
195					200					205						
Leu	Gly	Arg	Thr	Ile	His	Val	Pro	Val	Pro	Glu	Leu	Leu	Ser	Gly	Gly	
210					215					220						
Thr	Gln	Asp	Asn	Asp	Leu	Pro	Lys	Glu	Pro	Ala	Lys	Ala	Gly	Thr	Val	
225					230					235					240	
Val	Ala	Ile	Met	Leu	Ile	Pro	Met	Leu	Leu	Ile	Phe	Leu	Asn	Thr	Gly	
245					250					255						
Val	Ser	Ala	Leu	Ile	Ser	Glu	Lys	Leu	Val	Ser	Ala	Asp	Glu	Thr	Trp	
260					265					270						
Val	Gln	Thr	Ala	Lys	Ile	Ile	Gly	Ser	Thr	Pro	Ile	Ala	Leu	Leu	Ile	
275					280					285						
Ser	Val	Leu	Val	Ala	Leu	Phe	Val	Leu	Gly	Arg	Lys	Arg	Gly	Glu	Ser	
290					295					300						
Gly	Ser	Ala	Leu	Glu	Lys	Thr	Val	Asp	Gly	Ala	Leu	Ala	Pro	Val	Cys	
305					310					315					320	
Ser	Val	Ile	Leu	Ile	Thr	Gly	Ala	Gly	Gly	Met	Phe	Gly	Gly	Val	Leu	
325					330					335						
Arg	Ala	Ser	Gly	Ile	Gly	Lys	Ala	Leu	Ala	Asp	Ser	Met	Ala	Asp	Leu	
340					345					350						
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355					360					365						
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370					375					380						
Met	Ala	Pro	Ala	Val	Ala	Ala	Ala	Gly	Phe	Thr	Asp	Trp	Gln	Leu	Ala	
385					390					395					400	
Cys	Ile	Val	Leu	Ala	Thr	Ala	Ala	Gly	Ser	Val	Gly	Cys	Ser	His	Phe	
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Asn	Asp	Ser	Gly	Phe	Trp	Leu	Val	Gly	Arg	Leu	Leu	Asp	Met	Asp	Val	
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Pro	Thr	Thr	Leu	Lys	Thr	Trp	Thr	Val	Asn	Gln	Thr	Leu	Ile	Ala	Leu	
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<212> DNA
<213> Neisseria gonorrhoeae

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<400> 589
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8

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<213> Neisseria gonorrhoeae

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35 40 45
Ala Thr Gly Leu Pro Thr Gly Ser Ile Val Asn Asp Val Leu Val Lys
50 55 60
Asn Phe Gly Gly Thr Leu Gly Gly Val Ala Leu Leu Val Gly Leu Gly
65 70 75 80
Ala Met Leu Gly Arg Leu Val Glu Thr Ser Gly Gly Ala Gln Ser Leu
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Ala Asp Ala Leu Ile Arg Met Phe Gly Glu Lys Arg Ala Pro Phe Ala
100 105 110
Pro Gly Val Ala Ser Leu Ile Phe Gly Phe Pro Ile Phe Phe Asp Ala
115 120 125
Gly Leu Ile Val Met Leu Pro Ile Val Phe Ala Thr Ala Arg Arg Met
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Lys Gln Asp Val Leu Pro Phe Ala Leu Ala Ser Val Gly Ala Phe Ser
145 150 155 160
Val Met His Val Phe Leu Pro Pro His Pro Gly Pro Ile Ala Ala Ser
165 170 175
Glu Phe Tyr Gly Ala Asn Ile Gly Gln Val Leu Ile Leu Gly Leu Pro
180 185 190
Thr Ala Phe Ile Thr Trp Tyr Phe Ser Gly Tyr Met Leu Gly Lys Val
195 200 205

Leu Gly Arg Ala Ile His Val Pro Val Pro Glu Leu Leu Ser Gly Gly
 210 215 220
 Thr Gln Asp Ser Asp Pro Pro Lys Glu Pro Ala Lys Ala Gly Thr Val
 225 230 235 240
 Val Ala Val Met Leu Ile Pro Met Leu Leu Ile Phe Leu Asn Thr Gly
 245 250 255
 Val Ser Ala Leu Ile Ser Glu Lys Leu Val Ser Ala Asp Glu Thr Trp
 260 265 270
 Val Gln Thr Ala Lys Met Ile Gly Ser Thr Pro Val Ala Leu Leu Ile
 275 280 285
 Ser Val Leu Ala Ala Leu Leu Val Leu Gly Arg Lys Arg Gly Glu Ser
 290 295 300
 Gly Ser Thr Leu Glu Lys Thr Val Asp Gly Ala Leu Ala Pro Ala Cys
 305 310 315 320
 Ser Val Ile Leu Ile Thr Gly Ala Gly Gly Met Phe Gly Gly Val Leu
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 Arg Ala Ser Gly Ile Gly Lys Ala Leu Ala Asp Ser Met Ala Asp Leu
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 Gly Ile Pro Val Leu Leu Gly Cys Phe Leu Val Ala Leu Ala Leu Arg
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 Ile Ala Gln Gly Ser Ala Thr Val Ala Leu Thr Thr Ala Ala Ala Leu
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 385 390 395 400
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 Asn Asp Ser Gly Phe Trp Leu Val Gly Arg Leu Ser Asp Met Asp Val
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 <211> 1386
 <212> DNA
 <213> Neisseria gonorrhoeae
 <400> 591

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<210> 592
 <211> 461
 <212> PRT
 <213> *Neisseria gonorrhoeae*

<400> 592
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 1 5 10 15
 Ser Ala Ala Ala Ile Ile Leu Ile Leu Ile Leu Ile Val Lys Phe Arg
 20 25 30
 Ile Arg Ala Leu Leu Thr Leu Val Ile Ala Ser Leu Leu Thr Ala Leu
 35 40 45
 Ala Thr Gly Leu Pro Thr Gly Ser Ile Val Asn Asp Val Leu Val Lys
 50 55 60
 Asn Phe Gly Gly Thr Leu Gly Gly Val Ala Leu Leu Val Gly Leu Gly
 65 70 75 80
 Ala Met Leu Gly Arg Leu Val Glu Thr Ser Gly Gly Ala Gln Ser Leu
 85 90 95
 Ala Asp Ala Leu Ile Arg Met Phe Gly Glu Lys Arg Ala Pro Phe Ala
 100 105 110
 Pro Gly Val Ala Ser Leu Ile Phe Gly Phe Pro Ile Phe Phe Asp Ala
 115 120 125

Gly Leu Ile Val Met Leu Pro Ile Val Phe Ala Thr Ala Arg Arg Met
 130 135 140
 Lys Gln Asp Val Leu Pro Phe Ala Leu Ala Ser Val Gly Ala Phe Ser
 145 150 155 160
 Val Met His Val Phe Leu Pro Pro His Pro Gly Pro Ile Ala Ala Ser
 165 170 175
 Glu Phe Tyr Gly Ala Asn Ile Gly Gln Val Leu Ile Leu Gly Leu Pro
 180 185 190
 Thr Ala Phe Ile Thr Trp Tyr Phe Ser Gly Tyr Met Leu Gly Lys Val
 195 200 205
 Leu Gly Arg Ala Ile His Val Pro Val Pro Glu Leu Leu Ser Gly Gly
 210 215 220
 Thr Gln Asp Ser Asp Pro Pro Lys Glu Pro Ala Lys Ala Gly Thr Val
 225 230 235 240
 Val Ala Val Met Leu Ile Pro Met Leu Leu Ile Phe Leu Asn Thr Gly
 245 250 255
 Val Ser Ala Leu Ile Ser Glu Lys Leu Val Ser Ala Asp Glu Thr Trp
 260 265 270
 Val Gln Thr Ala Lys Met Ile Gly Ser Thr Pro Val Ala Leu Leu Ile
 275 280 285
 Ser Val Leu Ala Ala Leu Leu Val Leu Gly Arg Lys Arg Gly Glu Ser
 290 295 300
 Gly Ser Thr Leu Glu Lys Thr Val Asp Gly Ala Leu Ala Pro Ala Cys
 305 310 315 320
 Ser Val Ile Leu Ile Thr Gly Ala Gly Gly Met Phe Gly Gly Val Leu
 325 330 335
 Arg Ala Ser Gly Ile Gly Lys Ala Leu Ala Asp Ser Met Ala Asp Leu
 340 345 350
 Gly Ile Pro Val Leu Leu Gly Cys Phe Leu Val Ala Leu Ala Leu Arg
 355 360 365
 Ile Ala Gln Gly Ser Ala Thr Val Ala Leu Thr Thr Ala Ala Ala Leu
 370 375 380
 Met Ala Pro Ala Val Ala Ala Ala Gly Phe Thr Asp Trp Gln Leu Ala
 385 390 395 400
 Cys Ile Val Leu Ala Thr Ala Ala Gly Ser Val Gly Cys Ser His Phe
 405 410 415
 Asn Asp Ser Gly Phe Trp Leu Val Gly Arg Leu Leu Asp Met Asp Val

420 425 430
 Pro Thr Thr Leu Lys Thr Trp Thr Val Asn Gln Thr Leu Ile Ala Phe
 435 440 445

Ile Gly Phe Ala Leu Ser Ala Leu Leu Phe Ala Ile Val
 450 455 460

<210> 593
 <211> 419
 <212> DNA
 <213> Neisseria meningitidis

<400> 593
 gatttcggca tatcgcccggt gtatcttttgg gttgccgccc cgttcaaaca tttgctgtcg 60
 ccgtgggctg ccgactcata cgatgtcgca cgctttgcag gcgtattttt tgccggtatc 120
 ggactgactt cctgcggctt tgccggtttc aacttttttg gcagacacca cgggcgcacg 180
 tcgtcctgat tctcatcggc tgtatcgggc tgattccagt tgcccatttc ctcaaccccg 240
 ctgccgcccgc ctttgccgcc gccggactgg tgctgcacgg ttattctttg gctcgccggc 300
 gcgtgattgc cgcctctttt ctgctcggtta cgggctggac gctgatgtcg ttggcagcag 360
 cttatccggc agcatttgcc ctgatgctgc ccttgcccgt actgatgttt ttccgtccg 419

<210> 594
 <211> 140
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (60)..(60)
 <223> Xaa= any amino acid

<400> 594
 Asp Phe Gly Ile Ser Pro Val Tyr Leu Trp Val Ala Ala Ala Phe Lys
 1 5 10 15

His Leu Leu Ser Pro Trp Ala Ala Asp Ser Tyr Asp Val Ala Arg Phe

20 25 30
 Ala Gly Val Phe Phe Ala Val Ile Gly Leu Thr Ser Cys Gly Phe Ala
 35 40 45

Gly Phe Asn Phe Leu Gly Arg His His Gly Arg Xaa Val Val Leu Ile
 50 55 60

Leu Ile Gly Cys Ile Gly Leu Ile Pro Val Ala His Phe Leu Asn Pro
 65 70 75 80

Ala Ala Ala Ala Phe Ala Ala Ala Gly Leu Val Leu His Gly Tyr Ser
 85 90 95

Leu Ala Arg Arg Arg Val Ile Ala Ala Ser Phe Leu Leu Gly Thr Gly
 100 105 110

Trp Thr Leu Met Ser Leu Ala Ala Ala Tyr Pro Ala Ala Phe Ala Leu

115 120 125

Met Leu Pro Leu Pro Val Leu Met Phe Phe Arg Pro
130 135 140

<210> 595
<211> 1662
<212> DNA
<213> *Neisseria meningitidis*

<400> 595
atgctgacct ataccccgcc cgatgcccgc ccgcccgcc aaacccacga aaagccgtgg 60
ctgctgctgt tgatggcggt tgccctggtg tggcccgccg tgttttccca cgatttgtgg 120
aatcctgacg aacctgccgt ctataccgcc gtccgaagcac tggcaggcag ccccaacccc 180
ttggttgccc atctgttcgg tcaaacccgat ttccggcatac cgcccgtgta tctttgggtt 240
gccgccgcgt tcaaacattt gctgtcgcgc tgggctgccg actcatacga tgccgcacgc 300
tttgccaggcg tattttttgc cgttatcgga ctgacttccg gcggctttgc cggtttcaac 360
tttttgggca gaccacacgg gcgcagcgtc gtccctgattc tcatcggtcg tatcgggctg 420
attccagttg cccatttccg caaccccgct gccgcgcct ttgccgcgc cggactgggtg 480
ctgcacgggtt attctttggc tcgccggcgc gtgattgccg cctcttttct gctcggtaacg 540
ggctggacgc tgatgtcggt ggcagcagct tatccggcag catttgccct gatgctgcc 600
ttgcccgtae tgatgttttt ccgtccgtgg caaagcaggc gtttgatgtt gacggcagtc 660
gcctcaactg cctttgccct gccgcttatg accgtttacc cgctgctctt ggcaaaaacg 720
cagcccgccg tgttccgcga atggctcgac tatcacgttt tcggtaacgtt cggcggcggtg 780
cggcacgttc agacggcatt cagtttggtt tactatctga aaaacctgct ttggtttgca 840
ttgcccgccg tgccgcgtggc ggtttggacg gtttgccgca cgcgcctgtt ttcgaccgac 900
tgggggattt tgggcgtcgt ctggatgctt gccgttttgg tgctgcttgc cgtcaatccg 960
cagcgttttc aggataacct cgtctggctg ctcccgccgc ttgccctgtt cggcgcggcg 1020
caactggaca gcctgaggcg cggcgcggcg gcgtttgtca actggttcgg cattatggcg 1080
ttcggactgt ttgccgtgtt cctgtggacg ggctttttcg ccatgaatta cggctggccc 1140
gccaaacttg ccgaacgcgc cgcctatttc agcccgatt atgttcctga tatcgatccc 1200
attccgatgg cggttgccgt actgttcaca cccttggtgc tgtgggcgat taccggaaa 1260
aacataccgc gcaggcaggc ggttaccaac tgggcggcag gcgttaccct gacctgggct 1320
ttgctgatga cgtgtttcct gccgtggctg gacgcggcga aaagccacgc gccggctcgtc 1380
cggagtatgg aggcacgcgt ttccccggaa ttgaaacggg agctttcaga cggcatcgag 1440
tgtatcggca taggcggcgg cgacctgcac acgcggattg ttggacgca gtacggcaca 1500
ttgccgcacc gcgtcggcga tgtacaatgc cgctaccgca tcgtcctcct gccccaaaat 1560
gcggatgcgc cgcaaggctg gcagacgggt tggcaggggtg cgcgtccgcg caacaaagac 1620

agtaagttcg cactgatacg gaaaatcggg gaaaatatat aa 1662

<210> 596
<211> 553
<212> PRT
<213> *Neisseria meningitidis*

<400> 596
Met Leu Thr Tyr Thr Pro Pro Asp Ala Arg Pro Pro Ala Lys Thr His
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Glu Lys Pro Trp Leu Leu Leu Leu Met Ala Phe Ala Trp Leu Trp Pro
20 25 30
Gly Val Phe Ser His Asp Leu Trp Asn Pro Asp Glu Pro Ala Val Tyr
35 40 45

Thr Ala Val Glu Ala Leu Ala Gly Ser Pro Thr Pro Leu Val Ala His
 50 55 60
 Leu Phe Gly Gln Thr Asp Phe Gly Ile Pro Pro Val Tyr Leu Trp Val
 65 70 75 80
 Ala Ala Ala Phe Lys His Leu Leu Ser Pro Trp Ala Ala Asp Ser Tyr
 85 90 95
 Asp Ala Ala Arg Phe Ala Gly Val Phe Phe Ala Val Ile Gly Leu Thr
 100 105 110
 Ser Cys Gly Phe Ala Gly Phe Asn Phe Leu Gly Arg His His Gly Arg
 115 120 125
 Ser Val Val Leu Ile Leu Ile Gly Cys Ile Gly Leu Ile Pro Val Ala
 130 135 140
 His Phe Leu Asn Pro Ala Ala Ala Ala Phe Ala Ala Ala Gly Leu Val
 145 150 155 160
 Leu His Gly Tyr Ser Leu Ala Arg Arg Arg Val Ile Ala Ala Ser Phe
 165 170 175
 Leu Leu Gly Thr Gly Trp Thr Leu Met Ser Leu Ala Ala Ala Tyr Pro
 180 185 190
 Ala Ala Phe Ala Leu Met Leu Pro Leu Pro Val Leu Met Phe Phe Arg
 195 200 205
 Pro Trp Gln Ser Arg Arg Leu Met Leu Thr Ala Val Ala Ser Leu Ala
 210 215 220
 Phe Ala Leu Pro Leu Met Thr Val Tyr Pro Leu Leu Leu Ala Lys Thr
 225 230 235 240
 Gln Pro Ala Leu Phe Ala Gln Trp Leu Asp Tyr His Val Phe Gly Thr
 245 250 255
 Phe Gly Gly Val Arg His Val Gln Thr Ala Phe Ser Leu Phe Tyr Tyr
 260 265 270
 Leu Lys Asn Leu Leu Trp Phe Ala Leu Pro Ala Leu Pro Leu Ala Val
 275 280 285
 Trp Thr Val Cys Arg Thr Arg Leu Phe Ser Thr Asp Trp Gly Ile Leu
 290 295 300
 Gly Val Val Trp Met Leu Ala Val Leu Val Leu Leu Ala Val Asn Pro
 305 310 315 320
 Gln Arg Phe Gln Asp Asn Leu Val Trp Leu Leu Pro Pro Leu Ala Leu
 325 330 335
 Phe Gly Ala Ala Gln Leu Asp Ser Leu Arg Arg Gly Ala Ala Ala Phe

340	345	350
Val Asn Trp Phe Gly Ile Met Ala Phe Gly Leu Phe Ala Val Phe Leu		
355	360	365
Trp Thr Gly Phe Phe Ala Met Asn Tyr Gly Trp Pro Ala Lys Leu Ala		
370	375	380
Glu Arg Ala Ala Tyr Phe Ser Pro Tyr Tyr Val Pro Asp Ile Asp Pro		
385	390	395
Ile Pro Met Ala Val Ala Val Leu Phe Thr Pro Leu Trp Leu Trp Ala		
405	410	415
Ile Thr Arg Lys Asn Ile Arg Gly Arg Gln Ala Val Thr Asn Trp Ala		
420	425	430
Ala Gly Val Thr Leu Thr Trp Ala Leu Leu Met Thr Leu Phe Leu Pro		
435	440	445
Trp Leu Asp Ala Ala Lys Ser His Ala Pro Val Val Arg Ser Met Glu		
450	455	460
Ala Ser Leu Ser Pro Glu Leu Lys Arg Glu Leu Ser Asp Gly Ile Glu		
465	470	475
Cys Ile Gly Ile Gly Gly Gly Asp Leu His Thr Arg Ile Val Trp Thr		
485	490	495
Gln Tyr Gly Thr Leu Pro His Arg Val Gly Asp Val Gln Cys Arg Tyr		
500	505	510
Arg Ile Val Leu Leu Pro Gln Asn Ala Asp Ala Pro Gln Gly Trp Gln		
515	520	525
Thr Val Trp Gln Gly Ala Arg Pro Arg Asn Lys Asp Ser Lys Phe Ala		
530	535	540
Leu Ile Arg Lys Ile Gly Glu Asn Ile		
545	550	

<210> 597
 <211> 1677
 <212> DNA
 <213> Neisseria meningitidis

<400> 597	
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aatcctgacg aacctgcggt ctataccgcc gtcgaagcac tggcaggcag cccacccct	180
ttggttgccc atctgttcgg tcaaatacat ttcggcatac cgcccggtga tctttgggtt	240
gccgccgctg tcaaacattt gctgtcgccg tgggctgccc acccgatatg tgccgcacgc	300
tttgccggcg tgtttttcgc cgttgtcgga ctgacttcct gcggctttgc cggtttcaac	360
tttttgggca gacaccacgg gcgcagcgct gtcctgattc tcatcggtctg tatcgggctg	420
attccgaccg tacactttct caaccccgct gccgccgcct ttgccggccg cggactgggtg	480
ctgcacgggtt attctttggc tcgccggcgc gtgattgccg cctcttttct gctcggtacg	540

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ggttggacgc tgatgtcggt ggcagcagct tatccggcgg catttgccct gatgctgccc 600
ctgcccgtgc tgatgttttt ccgtccgtgg caaagcaggc gtttgatgtt gacggcagtc 660
gcctcgcttg cctttgccct gccgttatg accgtttacc cgctgctctt ggcaaaaacg 720
cagcccgcgc tgttcgcgca atggctcgac gatcacgttt tcggtacgtt cggcggcgtg 780
cggcacattc agacggcatt cagtttgttt tactatctga aaaacctgct ttggtttgca 840
ttgcctgcgc tgccgctggc ggtttggacg gtttgccgca cgcgcctgtt ttcgaccgac 900
tgggggattt tgggcgtcgt ctggatgctt gccgttttgg tgctgcttgc cgtcaatccg 960
cagcgttttc aggataacct cgtctggtcg ctccgcgcgc ttgccctgtt cggcgcggcg 1020
caactggaca gcctgagacg cggcgcggcg gcgtttgtca actggttcgg cattatggcg 1080
ttcggactgt ttgccgtgtt cctgtggacg ggctttttcg ccatgaatta cggtggcccc 1140
gccaaagctt cgaacgcgc gcctatttc agcccgatt atgttcctga tatcgatccc 1200
attccgatgg cggttgccgt actgttcaca cccttgtggc tgtgggcgat taccgcaaa 1260
aacatacgcg gcaggcaggc ggttaccaac tgggcggcag gcgttaccct gacctgggct 1320
ttgctgatga cgctgttcct gccgtggtcg gacgcggcga aaagccacgc gcccgctcgc 1380
cggagtatgg aggcacgct ttccccggaa ttaaaacggg agctttcaga cggcatcgag 1440
tgtatcgaca taggcggcgg cgacctacac acgcggattg tttggacgca gtacggcaca 1500
ttgccgcacc gcgtcggcga tgtacaatgc gcctaccgca tcgtccgctt gcccctaac 1560
gcggatgcgc cgcaaggctg gcagacggtc tggcagggtg cgcgcccgcg caacaaagac 1620
agtaagttcg cactgatacg gaaaaccggg gaaaatatat taaaaacaac agattga 1677

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<210> 598
<211> 558
<212> PRT
<213> Neisseria meningitidis

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<400> 598
Met Leu Thr Tyr Thr Pro Pro Asp Ala Arg Pro Pro Ala Lys Thr His
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Glu Lys Pro Trp Leu Leu Leu Leu Met Ala Phe Ala Trp Leu Trp Pro
20 25 30

Gly Val Phe Ser His Asp Leu Trp Asn Pro Asp Glu Pro Ala Val Tyr
35 40 45

Thr Ala Val Glu Ala Leu Ala Gly Ser Pro Thr Pro Leu Val Ala His
50 55 60

Leu Phe Gly Gln Ile Asp Phe Gly Ile Pro Pro Val Tyr Leu Trp Val
65 70 75 80

Ala Ala Ala Phe Lys His Leu Leu Ser Pro Trp Ala Ala Asp Pro Tyr
85 90 95

Asp Ala Ala Arg Phe Ala Gly Val Phe Phe Ala Val Val Gly Leu Thr
100 105 110

Ser Cys Gly Phe Ala Gly Phe Asn Phe Leu Gly Arg His His Gly Arg
115 120 125

Ser Val Val Leu Ile Leu Ile Gly Cys Ile Gly Leu Ile Pro Thr Val
130 135 140

His Phe Leu Asn Pro Ala Ala Ala Ala Phe Ala Ala Ala Gly Leu Val
145 150 155 160

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Leu His Gly Tyr Ser Leu Ala Arg Arg Arg Val Ile Ala Ala Ser Phe
 165 170 175
 Leu Leu Gly Thr Gly Trp Thr Leu Met Ser Leu Ala Ala Ala Tyr Pro
 180 185 190
 Ala Ala Phe Ala Leu Met Leu Pro Leu Pro Val Leu Met Phe Phe Arg
 195 200 205
 Pro Trp Gln Ser Arg Arg Leu Met Leu Thr Ala Val Ala Ser Leu Ala
 210 215 220
 Phe Ala Leu Pro Leu Met Thr Val Tyr Pro Leu Leu Leu Ala Lys Thr
 225 230 235 240
 Gln Pro Ala Leu Phe Ala Gln Trp Leu Asp Asp His Val Phe Gly Thr
 245 250 255
 Phe Gly Gly Val Arg His Ile Gln Thr Ala Phe Ser Leu Phe Tyr Tyr
 260 265 270
 Leu Lys Asn Leu Leu Trp Phe Ala Leu Pro Ala Leu Pro Leu Ala Val
 275 280 285
 Trp Thr Val Cys Arg Thr Arg Leu Phe Ser Thr Asp Trp Gly Ile Leu
 290 295 300
 Gly Val Val Trp Met Leu Ala Val Leu Val Leu Leu Ala Val Asn Pro
 305 310 315 320
 Gln Arg Phe Gln Asp Asn Leu Val Trp Leu Leu Pro Pro Leu Ala Leu
 325 330 335
 Phe Gly Ala Ala Gln Leu Asp Ser Leu Arg Arg Gly Ala Ala Ala Phe
 340 345 350
 Val Asn Trp Phe Gly Ile Met Ala Phe Gly Leu Phe Ala Val Phe Leu
 355 360 365
 Trp Thr Gly Phe Phe Ala Met Asn Tyr Gly Trp Pro Ala Lys Leu Ala
 370 375 380
 Glu Arg Ala Ala Tyr Phe Ser Pro Tyr Tyr Val Pro Asp Ile Asp Pro
 385 390 395 400
 Ile Pro Met Ala Val Ala Val Leu Phe Thr Pro Leu Trp Leu Trp Ala
 405 410 415
 Ile Thr Arg Lys Asn Ile Arg Gly Arg Gln Ala Val Thr Asn Trp Ala
 420 425 430
 Ala Gly Val Thr Leu Thr Trp Ala Leu Leu Met Thr Leu Phe Leu Pro
 435 440 445
 Trp Leu Asp Ala Ala Lys Ser His Ala Pro Val Val Arg Ser Met Glu

450 455 460
 Ala Ser Leu Ser Pro Glu Leu Lys Arg Glu Leu Ser Asp Gly Ile Glu
 465 470 475 480
 Cys Ile Asp Ile Gly Gly Gly Asp Leu His Thr Arg Ile Val Trp Thr
 485 490 495
 Gln Tyr Gly Thr Leu Pro His Arg Val Gly Asp Val Gln Cys Arg Tyr
 500 505 510
 Arg Ile Val Arg Leu Pro Gln Asn Ala Asp Ala Pro Gln Gly Trp Gln
 515 520 525
 Thr Val Trp Gln Gly Ala Arg Pro Arg Asn Lys Asp Ser Lys Phe Ala
 530 535 540
 Leu Ile Arg Lys Thr Gly Glu Asn Ile Leu Lys Thr Thr Asp
 545 550 555

<210> 599
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1) .. (8)
 <223> N= Unknown

<400> 599
 nnnnnnnn

8

<210> 600
 <211> 585
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 600
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 His Leu Ala Ile Arg Pro Phe Leu Leu Thr Leu Met Leu Thr Tyr Thr

 20 25 30
 Pro Pro Asp Ala Arg Pro Pro Ala Lys Thr His Glu Lys Pro Trp Leu
 35 40 45
 Leu Leu Leu Met Ala Phe Ala Trp Leu Trp Pro Gly Val Phe Ser His
 50 55 60
 Asp Leu Trp Asn Pro Ala Glu Pro Ala Val Tyr Thr Ala Val Glu Ala
 65 70 75 80
 Leu Ala Gly Ser Pro Thr Pro Leu Val Ala His Leu Phe Gly Gln Thr

85										90										95									
Asp	Phe	Gly	Ile	Pro	Pro	Val	Tyr	Leu	Trp	Val	Ala	Ala	Ala	Phe	Lys														
			100					105						110															
His	Leu	Leu	Ser	Pro	Trp	Ala	Ala	His	Pro	Tyr	Asp	Ala	Ala	Arg	Phe														
		115						120						125															
Ala	Gly	Val	Phe	Phe	Ala	Val	Ile	Gly	Leu	Thr	Ser	Cys	Gly	Phe	Ala														
		130					135							140															
Gly	Phe	Asn	Phe	Leu	Gly	Arg	His	His	Gly	Arg	Ser	Val	Val	Leu	Ile														
145					150						155			160															
His	Ile	Gly	Cys	Ile	Gly	Leu	Ile	Pro	Val	Ala	His	Phe	Phe	Asn	Pro														
			165					170						175															
Ala	Ala	Ala	Ala	Phe	Ala	Ala	Ala	Gly	Leu	Val	Leu	His	Gly	Tyr	Ser														
			180					185						190															
Leu	Ala	Arg	Arg	Arg	Val	Ile	Ala	Ala	Ser	Phe	Leu	Leu	Gly	Thr	Gly														
		195					200							205															
Trp	Thr	Leu	Met	Ser	Leu	Ala	Ala	Ala	Tyr	Pro	Ala	Ala	Phe	Ala	Leu														
		210					215							220															
Met	Leu	Pro	Leu	Pro	Val	Leu	Met	Phe	Phe	Arg	Pro	Trp	Gln	Ser	Arg														
225					230						235			240															
Arg	Leu	Met	Leu	Thr	Ala	Val	Ala	Ser	Leu	Ala	Phe	Ala	Leu	Pro	Leu														
			245					250						255															
Met	Thr	Val	Tyr	Pro	Leu	Leu	Leu	Ala	Lys	Thr	Gln	Pro	Ala	Leu	Phe														
			260					265						270															
Ala	Gln	Trp	Leu	Asn	Tyr	His	Val	Phe	Gly	Thr	Phe	Gly	Gly	Val	Arg														
		275					280							285															
His	Ile	Gln	Arg	Ala	Phe	Ser	Leu	Phe	His	Tyr	Leu	Lys	Asn	Leu	Leu														
		290					295							300															
Trp	Phe	Ala	Pro	Pro	Gly	Leu	Pro	Leu	Ala	Val	Trp	Thr	Val	Cys	Arg														
305					310						315			320															
Thr	Arg	Leu	Phe	Ser	Thr	Asp	Trp	Gly	Ile	Leu	Gly	Ile	Val	Trp	Met														
				325				330						335															
Leu	Ala	Val	Leu	Val	Leu	Leu	Ala	Phe	Asn	Pro	Gln	Arg	Phe	Gln	Asp														
			340					345						350															
Asn	Leu	Val	Trp	Leu	Leu	Pro	Pro	Leu	Ala	Leu	Phe	Gly	Ala	Ala	Gln														
		355					360							365															
Leu	Asp	Ser	Leu	Arg	Arg	Gly	Ala	Ala	Ala	Phe	Val	Asn	Trp	Phe	Gly														
			370			375								380															

Ile Met Ala Phe Gly Leu Phe Ala Val Phe Leu Trp Thr Gly Phe Phe
385 390 395 400

Ala Met Asn Tyr Gly Trp Pro Ala Lys Leu Ala Glu Arg Ala Ala Tyr
405 410 415

Phe Ser Pro Tyr Tyr Val Pro Asp Ile Asp Pro Ile Pro Met Ala Val
420 425 430

Ala Val Leu Phe Thr Pro Leu Trp Leu Trp Ala Ile Thr Arg Lys Asn
435 440 445

Ile Arg Gly Arg Gln Ala Val Thr Asn Trp Ala Ala Gly Val Thr Leu
450 455 460

Thr Trp Ala Leu Leu Met Thr Leu Phe Leu Pro Trp Leu Asp Ala Ala
465 470 475 480

Lys Ser His Ala Pro Val Val Arg Ser Met Glu Ala Ser Phe Ser Pro
485 490 495

Glu Leu Lys Arg Glu Leu Ser Asp Gly Ile Glu Cys Ile Gly Ile Gly
500 505 510

Gly Gly Asp Leu His Thr Arg Ile Val Trp Thr Gln Tyr Gly Thr Leu
515 520 525

Pro His Arg Val Gly Asp Val Arg Cys Arg Tyr Arg Ile Val Arg Leu
530 535 540

Pro Gln Asn Ala Asp Ala Pro Gln Gly Trp Gln Thr Val Trp Gln Gly
545 550 555 560

Ala Arg Pro Arg Asn Lys Asp Ser Lys Phe Ala Leu Ile Arg Lys Ile
565 570 575

Gly Glu Asn Ile Leu Lys Thr Thr Asp
580 585

<210> 601
<211> 1677
<212> DNA
<213> Neisseria gonorrhoeae

<400> 601
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aatcctgccg aacctgccgt ctataccgcc gtcgaagcac tggcaggcag cccaccccc 180
ttggttgccc atctgttcgg tcaaaccgat ttcggcatac cgcccggtga tctttgggtt 240
gccgccgcat tcaaacattt gctgtcgccg tgggcagccg acccgatatg tgccgcacgc 300
tttgaggcg tattttttgc cgttatcgga ctgacttctt gcggctttgc cggtttcaac 360
ttttgggca gacaccacgg gcgcagcggt gttttaatcc atatcggtctg tatcgggctg 420
attccgggtg cccatttctt caatcccgcc gccgccgcct ttgccgccgc cggactgggtg 480
ctgcacgggt actcgctggc acgcccggcg gtgattgccg cctctttctt gctcggtacg 540

ggttggacgt	tgatgtcgct	ggcggcagct	tatccggcgg	cgtttgcgct	gatgctgccc	600
ctgcccgtgc	tgatgttttt	ccgtccgtgg	caaagcaggc	gtttgatgtt	gacggcagtc	660
gcctcgcttg	cctttgccct	gccgcttatg	accgtttacc	cgctgctctt	ggcaaaaacg	720
cagcccgcgc	tgtttgcgca	atggctcaac	tatcacgttt	tcggtacgtt	cggcggcggtg	780
cggcacattc	agagggcatt	cagtttgttt	cactatctga	aaaatctgct	ttggttcgca	840
ccgcccgggc	tgccgctggc	ggtttggacg	gtttgccgca	cacgcctgtt	ttcgaccgac	900
tgggggattt	tgggcattgt	ctggatgctt	gccgttttgg	tgctgctcgc	ctttaatccg	960
cagcgttttc	aagacaacct	cgtctggctg	ctgccgcgcg	ttgccctgtt	cggcgcggcg	1020
caactggaca	gcctgaggcg	cggcgcggcg	gcttttgtca	actggttcgg	cattatggcg	1080
ttcgggctgt	ttgccgtgtt	cctgtggacg	ggctttttcg	ccatgaatta	cggttgcccc	1140
gccaaacttg	ccgaacgcgc	cgccacttcc	agcccgtatt	acgttcccga	catcgatccc	1200
attccgatgg	cggttgccgt	actgttcaca	cccttggtgg	tggtggcgat	tacccggaac	1260
aacatacgcg	gcaggcaggc	ggttaccaac	tgggcggcag	gcgttaccct	gacctgggct	1320
ttgctgatga	cgctgttcct	gccgtggctg	gacgcggcga	aaagccacgc	gcccgtcgtc	1380
cggagtatgg	aggcatcggt	ttccccggaa	ttaaaacggg	agctttcaga	cggcatcgag	1440
tgtatcggca	taggcggcgg	cgacctgcac	acgcggattg	tttggacgca	gtacggcaca	1500
ttgccgcacc	gcgtcggcga	tgtccgttgc	cgctaccgta	tcgtccgcct	gccccaaaac	1560
gcggatgcgc	cgcaaggctg	gcagacggtc	tggcaggggtg	cgcccccgcg	caacaaagac	1620
agtaagtttg	cactgatacg	gaaaatcggg	gaaaatatat	taaaaacaac	agattga	1677

<210> 602
 <211> 558
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 602
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 1 5 10 15
 Glu Lys Pro Trp Leu Leu Leu Leu Met Ala Phe Ala Trp Leu Trp Pro
 20 25 30
 Gly Val Phe Ser His Asp Leu Trp Asn Pro Ala Glu Pro Ala Val Tyr
 35 40 45
 Thr Ala Val Glu Ala Leu Ala Gly Ser Pro Thr Pro Leu Val Ala His
 50 55 60
 Leu Phe Gly Gln Thr Asp Phe Gly Ile Pro Pro Val Tyr Leu Trp Val
 65 70 75 80
 Ala Ala Ala Phe Lys His Leu Leu Ser Pro Trp Ala Ala Asp Pro Tyr
 85 90 95
 Asp Ala Ala Arg Phe Ala Gly Val Phe Phe Ala Val Ile Gly Leu Thr
 100 105 110
 Ser Cys Gly Phe Ala Gly Phe Asn Phe Leu Gly Arg His His Gly Arg
 115 120 125
 Ser Val Val Leu Ile His Ile Gly Cys Ile Gly Leu Ile Pro Val Ala
 130 135 140
 His Phe Leu Asn Pro Ala Ala Ala Ala Phe Ala Ala Ala Gly Leu Val
 145 150 155 160

Leu His Gly Tyr Ser Leu Ala Arg Arg Arg Val Ile Ala Ala Ser Phe
 165 170 175
 Leu Leu Gly Thr Gly Trp Thr Leu Met Ser Leu Ala Ala Ala Tyr Pro
 180 185 190
 Ala Ala Phe Ala Leu Met Leu Pro Leu Pro Val Leu Met Phe Phe Arg
 195 200 205
 Pro Trp Gln Ser Arg Arg Leu Met Leu Thr Ala Val Ala Ser Leu Ala
 210 215 220
 Phe Ala Leu Pro Leu Met Thr Val Tyr Pro Leu Leu Leu Ala Lys Thr
 225 230 235 240
 Gln Pro Ala Leu Phe Ala Gln Trp Leu Asn Tyr His Val Phe Gly Thr
 245 250 255
 Phe Gly Gly Val Arg His Ile Gln Arg Ala Phe Ser Leu Phe His Tyr
 260 265 270
 Leu Lys Asn Leu Leu Trp Phe Ala Pro Pro Gly Leu Pro Leu Ala Val
 275 280 285
 Trp Thr Val Cys Arg Thr Arg Leu Phe Ser Thr Asp Trp Gly Ile Leu
 290 295 300
 Gly Ile Val Trp Met Leu Ala Val Leu Val Leu Leu Ala Phe Asn Pro
 305 310 315 320
 Gln Arg Phe Gln Asp Asn Leu Val Trp Leu Leu Pro Pro Leu Ala Leu
 325 330 335
 Phe Gly Ala Ala Gln Leu Asp Ser Leu Arg Arg Gly Ala Ala Ala Phe
 340 345 350
 Val Asn Trp Phe Gly Ile Met Ala Phe Gly Leu Phe Ala Val Phe Leu
 355 360 365
 Trp Thr Gly Phe Phe Ala Met Asn Tyr Gly Trp Pro Ala Lys Leu Ala
 370 375 380
 Glu Arg Ala Ala Tyr Phe Ser Pro Tyr Tyr Val Pro Asp Ile Asp Pro
 385 390 395 400
 Ile Pro Met Ala Val Ala Val Leu Phe Thr Pro Leu Trp Leu Trp Ala
 405 410 415
 Ile Thr Arg Lys Asn Ile Arg Gly Arg Gln Ala Val Thr Asn Trp Ala
 420 425 430
 Ala Gly Val Thr Leu Thr Trp Ala Leu Leu Met Thr Leu Phe Leu Pro
 435 440 445
 Trp Leu Asp Ala Ala Lys Ser His Ala Pro Val Val Arg Ser Met Glu
 450 455 460

Ala Ser Phe Ser Pro Glu Leu Lys Arg Glu Leu Ser Asp Gly Ile Glu
465 470 475 480

Cys Ile Gly Ile Gly Gly Gly Asp Leu His Thr Arg Ile Val Trp Thr
485 490 495

Gln Tyr Gly Thr Leu Pro His Arg Val Gly Asp Val Arg Cys Arg Tyr
500 505 510

Arg Ile Val Arg Leu Pro Gln Asn Ala Asp Ala Pro Gln Gly Trp Gln
515 520 525

Thr Val Trp Gln Gly Ala Arg Pro Arg Asn Lys Asp Ser Lys Phe Ala
530 535 540

Leu Ile Arg Lys Ile Gly Glu Asn Ile Leu Lys Thr Thr Asp
545 550 555

<210> 603

<211> 180

<212> PRT

<213> Neisseria meningitidis

<400> 603

Cys Ala Ala Thr Cys Cys Gly Cys Cys Ala Ala Ala Thr Gly Gly Thr
1 5 10 15

Thr Ala Thr Cys Gly Gly Gly Cys Cys Ala Ala Ala Cys Thr Cys Thr
20 25 30

Ala Gly Thr Cys Gly Gly Cys Ala Cys Ala Gly Cys Ala Ala Thr Thr
35 40 45

Gly Gly Gly Ala Thr Ala Cys Gly Cys Gly Gly Gly Cys Ala Gly Ala
50 55 60

Thr Ala Ala Ala Gly Cys Thr Thr Gly Gly Cys Gly Gly Cys Ala Ala
65 70 75 80

Cys Cys Thr Gly Cys Ala Thr Thr Ala Cys Gly Ala Thr Ala Thr Ala
85 90 95

Thr Thr Thr Ala Cys Cys Gly Gly Cys Cys Gly Cys Gly Cys Ala Thr
100 105 110

Thr Gly Ala Ala Ala Ala Ala Gly Cys Cys Cys Gly Ala Ala Thr Thr
115 120 125

Thr Thr Thr Cys Cys Ala Ala Thr Cys Ala Ala Gly Gly Ala Ala Ala
130 135 140

Thr Gly Gly Gly Cys Ala Ala Gly Cys Gly Gly Thr Thr Thr Thr Cys
145 150 155 160

Ala Gly Gly Thr Ala Gly Gly Cys Thr Ala Thr Ala Cys Gly Thr Thr

165

170

175

Thr Thr Ala Ala
180

<210> 604
<211> 59
<212> PRT
<213> *Neisseria meningitidis*

<400> 604
Gln Ser Ala Lys Trp Leu Ser Gly Gln Thr Leu Val Gly Thr Ala Ile
1 5 10 15

Gly Ile Arg Gly Gln Ile Lys Leu Gly Gly Asn Leu His Tyr Asp Ile
20 25 30

Phe Thr Gly Arg Ala Leu Lys Lys Pro Glu Phe Phe Gln Ser Arg Lys
35 40 45

Trp Ala Ser Gly Phe Gln Val Gly Tyr Thr Phe
50 55

<210> 605
<211> 1029
<212> DNA
<213> *Neisseria meningitidis*

<400> 605
atggataatt cgggtagtga ggcgacagga aaataccaag gaaatatcac tttctctgcc 60
gacaatcctt tgggactgag tgatatgttc tatgtaaatt atggacgttc gattggcggt 120
acgcccgatg aggaaagttt tgacggccat cgcaaagaag gcggatcaaa caattacgcc 180
gtacattatt cagccccttt cggtaaattg acatgggcat tcaatcacia tggctaccgt 240
taccatcagg cagtttccgg attatcgga gtctatgact ataattgaaa aagttacaat 300
actgatttcg gcttcaaccg cctgttgtat cgtgatgcca aacgcaaaac ctatctcggt 360
gtaaaactgt ggatgaggga aacaaaaagt tacattgatg atgccgaact gactgtacaa 420
cggcgtaaaa ctgcggttg gttggcagaa ctttcccaca aagaatatat cggtcgcagt 480
acggcagatt ttaagttgaa atataaacgc ggccaccgca tgaaagatgc tctgcgcgcg 540
cctgaagaag cctttggcga aggcacgtca cgtatgaaaa tttggacggc atcggtgat 600
gtaaatactc cttttcaaat cggtaaacag ctatttgcct atgacacatc cgttcatgca 660
caatggaaca aaaccccgct aacatcgcaa gacaaactgg ctatcggcgg acaccacacc 720
gtacgtggct tcgacgggtga aatgagtttg tctgccgagc ggggatggta ttggcgcaac 780
gatttgagct ggcaatttaa accaggccat cagctttatc ttggggctga ttaggacat 840
gtttcaggac aatccgcaa atggttatcg ggccaaactc tagtcggcac agcaattggg 900
atacggggc agataaagct tggcggaac ctgcattacg atatatttac cggccgcgca 960
ttgaaaaagc ccgaattttt ccaatcaagg aaatgggcaa gcggttttca ggtaggctat 1020
acgttttaa 1029

<210> 606

<211> 342
<212> PRT
<213> *Neisseria meningitidis*

<400> 606
Met Asp Asn Ser Gly Ser Glu Ala Thr Gly Lys Tyr Gln Gly Asn Ile

1	5	10	15
Thr Phe Ser	Ala Asp Asn Pro Leu Gly	Leu Ser Asp Met	Phe Tyr Val
	20	25	30
Asn Tyr Gly	Arg Ser Ile Gly Gly Thr	Pro Asp Glu Glu Ser	Phe Asp
	35	40	45
Gly His Arg	Lys Glu Gly Gly Ser Asn Asn Tyr	Ala Val His Tyr	Ser
	50	55	60
Ala Pro Phe	Gly Lys Trp Thr Trp Ala Phe	Asn His Asn Gly Tyr	Arg
65	70	75	80
Tyr His Gln	Ala Val Ser Gly Leu Ser	Glu Val Tyr Asp Tyr	Asn Gly
	85	90	95
Lys Ser Tyr	Asn Thr Asp Phe Gly Phe	Asn Arg Leu Leu Tyr	Arg Asp
	100	105	110
Ala Lys Arg	Lys Thr Tyr Leu Gly Val Lys	Leu Trp Met Arg Glu Thr	
	115	120	125
Lys Ser Tyr	Ile Asp Asp Ala Glu Leu Thr	Val Gln Arg Arg Lys Thr	
	130	135	140
Ala Gly Trp	Leu Ala Glu Leu Ser His Lys	Glu Tyr Ile Gly Arg Ser	
145	150	155	160
Thr Ala Asp	Phe Lys Leu Lys Tyr Lys	Arg Gly Thr Gly Met Lys	Asp
	165	170	175
Ala Leu Arg	Ala Pro Glu Glu Ala Phe	Gly Glu Gly Thr Ser Arg	Met
	180	185	190
Lys Ile Trp	Thr Ala Ser Ala Asp Val	Asn Thr Pro Phe Gln Ile Gly	
	195	200	205
Lys Gln Leu	Phe Ala Tyr Asp Thr Ser Val	His Ala Gln Trp Asn Lys	
	210	215	220
Thr Pro Leu	Thr Ser Gln Asp Lys Leu Ala	Ile Gly Gly His His Thr	
225	230	235	240
Val Arg Gly	Phe Asp Gly Glu Met Ser	Leu Ser Ala Glu Arg Gly Trp	
	245	250	255
Tyr Trp Arg	Asn Asp Leu Ser Trp Gln	Phe Lys Pro Gly His Gln Leu	
	260	265	270
Tyr Leu Gly	Ala Asp Val Gly His Val	Ser Gly Gln Ser Ala Lys Trp	
	275	280	285
Leu Ser Gly	Gln Thr Leu Val Gly Thr	Ala Ile Gly Ile Arg Gly Gln	
	290	295	300

Ile Lys Leu Gly Gly Asn Leu His Tyr Asp Ile Phe Thr Gly Arg Ala
 305 310 315 320

Leu Lys Lys Pro Glu Phe Phe Gln Ser Arg Lys Trp Ala Ser Gly Phe
 325 330 335

Gln Val Gly Tyr Thr Phe
 340

<210> 607
 <211> 1029
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 607
 atggataatt cgggtagtga ggcgacagga aaataccaag gaaatatcac tttctctgcc 60
 gacaatcctt ttggactgag tgatatgttc tatgtaaatt atggacgttc aattggcggg 120
 acgcccgatg aggaaaattt tgacggccat cgcaaagaag gcggatcaaa caattacgcc 180
 gtacattatt cagccccctt cggtaaattg acatgggcat tcaatcacia tggctaccgt 240
 taccatcagg cggtttcagg attatcgga gtctatgact ataattgaaa aagttacaac 300
 actgatttcg gcttcaaccg cctgttgtat cgtgatgcca aacgcaaac ctatctcagt 360
 gtaaaactgt ggacgagggg aacaaaaagt tacattgatg atgccgaact gactgtacaa 420
 cggcgtaaaa ccacagggtt gttggcagaa ctttcccaca aaggatatat cggtcgcagt 480
 acggcagatt ttaagttgaa atataaacac ggcaccggca tgaaagatgc tctgcgcgcg 540
 cctgaagaag cctttggcga aggcacgtca cgtatgaaaa tttggacggc atcgggtgat 600
 gtaataactc cttttcaa atcgtaaacag ctatttgcct atgacacatc cgttcatgca 660
 caatggaaca aaaccccgct aacatcgcaa gacaaactgg ctatcggcgg acaccacacc 720
 gtacgtggct tcgacgggtg aatgagtttg cctgccgagc ggggatggta ttggcgcaac 780
 gatttgagct ggcaatttaa accaggccat cagctttatc ttggggctga tgtaggacat 840
 gtttcaggac aatccgcaa atggttatcg ggccaaactc tagccggcac agcaattggg 900
 atacgcgggc agataaagct tggcggcaac ctgcattacg atatatttac cggccgtgca 960
 ttgaaaaagc ccgaatattt tcagacgaag aaatgggtaa cgggggtttca ggtgggttat 1020
 tcgttttga 1029

<210> 608
 <211> 342
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 608
 Met Asp Asn Ser Gly Ser Glu Ala Thr Gly Lys Tyr Gln Gly Asn Ile
 1 5 10 15

Thr Phe Ser Ala Asp Asn Pro Phe Gly Leu Ser Asp Met Phe Tyr Val
 20 25 30

Asn Tyr Gly Arg Ser Ile Gly Gly Thr Pro Asp Glu Glu Asn Phe Asp
 35 40 45

Gly His Arg Lys Glu Gly Gly Ser Asn Asn Tyr Ala Val His Tyr Ser

50 55 60

Ala Pro Phe Gly Lys Trp Thr Trp Ala Phe Asn His Asn Gly Tyr Arg
 65 70 75 80

Tyr His Gln Ala Val Ser Gly Leu Ser Glu Val Tyr Asp Tyr Asn Gly
 85 90 95
 Lys Ser Tyr Asn Thr Asp Phe Gly Phe Asn Arg Leu Leu Tyr Arg Asp
 100 105 110
 Ala Lys Arg Lys Thr Tyr Leu Ser Val Lys Leu Trp Thr Arg Glu Thr
 115 120 125
 Lys Ser Tyr Ile Asp Asp Ala Glu Leu Thr Val Gln Arg Arg Lys Thr
 130 135 140
 Thr Gly Trp Leu Ala Glu Leu Ser His Lys Gly Tyr Ile Gly Arg Ser
 145 150 155 160
 Thr Ala Asp Phe Lys Leu Lys Tyr Lys His Gly Thr Gly Met Lys Asp
 165 170 175
 Ala Leu Arg Ala Pro Glu Glu Ala Phe Gly Glu Gly Thr Ser Arg Met
 180 185 190
 Lys Ile Trp Thr Ala Ser Ala Asp Val Asn Thr Pro Phe Gln Ile Gly
 195 200 205
 Lys Gln Leu Phe Ala Tyr Asp Thr Ser Val His Ala Gln Trp Asn Lys
 210 215 220
 Thr Pro Leu Thr Ser Gln Asp Lys Leu Ala Ile Gly Gly His His Thr
 225 230 235 240
 Val Arg Gly Phe Asp Gly Glu Met Ser Leu Pro Ala Glu Arg Gly Trp
 245 250 255
 Tyr Trp Arg Asn Asp Leu Ser Trp Gln Phe Lys Pro Gly His Gln Leu
 260 265 270
 Tyr Leu Gly Ala Asp Val Gly His Val Ser Gly Gln Ser Ala Lys Trp
 275 280 285
 Leu Ser Gly Gln Thr Leu Ala Gly Thr Ala Ile Gly Ile Arg Gly Gln
 290 295 300
 Ile Lys Leu Gly Gly Asn Leu His Tyr Asp Ile Phe Thr Gly Arg Ala
 305 310 315 320
 Leu Lys Lys Pro Glu Tyr Phe Gln Thr Lys Lys Trp Val Thr Gly Phe
 325 330 335
 Gln Val Gly Tyr Ser Phe
 340

<210> 609
 <211> 332
 <212> DNA

<213> Neisseria meningitidis

<400> 609

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atgcggacga aatgggtcagc agtgagaagc tgcttacttg ggcggacacc gccgacatcg      60
ataccgcttt gaacctgttg taccgtttgc aaaaactcga attcctctat ggcgatgaaa      120
acgggtcattc agacggcatc aatttgwcgg acgagcaatt gccgttgctg atggaacaat      180
tgtccggcag cggttaaggcg ttattggtcg atcggaacgg tctgtatctt gccaacgcca      240
atttccatca tgaggcggcg gaagagttgg gggtgttggc ggcagaagtc gcacagatgg      300
aaaagaaata ccggctgctg attaagaaca ac                                     332
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<210> 610

<211> 110

<212> PRT

<213> Neisseria meningitidis

<220>

<221> misc_feature

<222> (49)..(49)

<223> Xaa= any amino acid

<400> 610

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Met Arg Thr Lys Trp Ser Ala Val Arg Ser Cys Thr Trp Ala Asp Thr
1           5           10           15
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Ala Asp Ile Asp Thr Ala Leu Asn Leu Leu Tyr Arg Leu Gln Lys Leu
                20           25           30
```

```
Glu Phe Leu Tyr Gly Asp Glu Asn Gly His Ser Asp Gly Ile Asn Leu
35           40           45
```

```
Xaa Asp Glu Gln Leu Pro Leu Leu Met Glu Gln Leu Ser Gly Ser Gly
50           55           60
```

```
Lys Ala Leu Leu Val Asp Arg Asn Gly Leu Tyr Leu Ala Asn Ala Asn
65           70           75           80
```

```
Phe His His Glu Ala Ala Glu Glu Leu Gly Leu Leu Ala Ala Glu Val
85           90           95
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```
Ala Gln Met Glu Lys Lys Tyr Arg Leu Leu Ile Lys Asn Asn
100          105          110
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<210> 611

<211> 645

<212> DNA

<213> Neisseria meningitidis

<400> 611

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atggaatcaa cactttcact acaagcaaat ttatatcccc gcttgactcc tgccggtgca      60
ttttatgccg tatccagcga tgccccagc gccggtaaaa ctttgttgca cagcctgttg      120
aaagcagatg cggacgaaat ggtcagcagc gagaagctgc ttacttgggc ggacaccgcc      180
gacatcgata ccgctttgaa cctgttgtag cgtttgcaaa aactcgaatt cctctatggc      240
gatgaaaacg gtcattcaga cggcatcaat ttgtcggacg agcaattgcc gttgctgatg      300
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gaacaattgt ccggcagcgg taaggcgtta ttggtcgacg ggaacggctc gtatcttgcc      360
aacgccaatt tccatcatga ggccggcgga gagttggggg tggtggcggc agaagtcgca      420
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cagatggaaa	agaaataccg	gctgctgatt	aagaacaacc	tgtatatcaa	caataacgct	480
tggggcggtt	gcgacccctc	cggtcagagc	gaattgacat	ttttcccatt	gtatatcggt	540
tcaaccaa	ttatcttggt	tatcggcggc	attcccgcatt	tgggcaaaga	ggcatttggt	600
actttggtaa	ggattttata	ccgccgttac	agcaaccgcg	tgtaa		645

<210> 612
 <211> 214
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 612

Met	Glu	Ser	Thr	Leu	Ser	Leu	Gln	Ala	Asn	Leu	Tyr	Pro	Arg	Leu	Thr
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Pro	Ala	Gly	Ala	Phe	Tyr	Ala	Val	Ser	Ser	Asp	Ala	Pro	Ser	Ala	Gly
			20					25					30		
Lys	Thr	Leu	Leu	His	Ser	Leu	Leu	Lys	Ala	Asp	Ala	Asp	Glu	Met	Val
		35					40					45			
Ser	Ser	Glu	Lys	Leu	Leu	Thr	Trp	Ala	Asp	Thr	Ala	Asp	Ile	Asp	Thr
	50					55					60				
Ala	Leu	Asn	Leu	Leu	Tyr	Arg	Leu	Gln	Lys	Leu	Glu	Phe	Leu	Tyr	Gly
65					70				75						80
Asp	Glu	Asn	Gly	His	Ser	Asp	Gly	Ile	Asn	Leu	Ser	Asp	Glu	Gln	Leu
				85					90					95	
Pro	Leu	Leu	Met	Glu	Gln	Leu	Ser	Gly	Ser	Gly	Lys	Ala	Leu	Leu	Val
			100					105					110		
Asp	Arg	Asn	Gly	Leu	Tyr	Leu	Ala	Asn	Ala	Asn	Phe	His	His	Glu	Ala
		115					120					125			
Ala	Glu	Glu	Leu	Gly	Leu	Leu	Ala	Ala	Glu	Val	Ala	Gln	Met	Glu	Lys
	130					135					140				
Lys	Tyr	Arg	Leu	Leu	Ile	Lys	Asn	Asn	Leu	Tyr	Ile	Asn	Asn	Asn	Ala
145					150					155					160
Trp	Gly	Val	Cys	Asp	Pro	Ser	Gly	Gln	Ser	Glu	Leu	Thr	Phe	Phe	Pro
			165					170						175	
Leu	Tyr	Ile	Gly	Ser	Thr	Lys	Phe	Ile	Leu	Val	Ile	Gly	Gly	Ile	Pro
		180						185					190		
Asp	Leu	Gly	Lys	Glu	Ala	Phe	Val	Thr	Leu	Val	Arg	Ile	Leu	Tyr	Arg
	195						200					205			
Arg	Tyr	Ser	Asn	Arg	Val										
	210														

<210> 613

<211> 684

<212> DNA
<213> *Neisseria meningitidis*

<220>
<221> misc_feature
<222> (13)..(13)
<223> N= Unknown

<220>
<221> misc_feature
<222> (38)..(38)
<223> N= Unknown

<220>
<221> misc_feature
<222> (83)..(83)
<223> N= Unknown

<220>
<221> misc_feature
<222> (144)..(144)
<223> N= Unknown

<220>
<221> misc_feature
<222> (174)..(174)
<223> N= Unknown

<220>
<221> misc_feature
<222> (446)..(447)
<223> N= Unknown

<220>
<221> misc_feature
<222> (615)..(615)
<223> N= Unknown

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<222> (623)..(623)
<223> N= Unknown

<220>
<221> misc_feature
<222> (626)..(626)
<223> N= Unknown

<220>
<221> misc_feature
<222> (663)..(663)
<223> N= Unknown

<400> 613
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60

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aaagcggatg	cggacgaaat	ggtnagcagt	gagaagctgc	ttacctgggc	gganaccgcc	180
gacatcgata	ccgctttgaa	cctgtttgtac	cgtttgcaaa	aactcgaatt	cctctatggc	240
gatgaaaacg	gtcattcaga	cggcataaat	ttgtcggacg	agcaattgcc	gttgctgatg	300
gaacaattgt	ccggcagcgg	taaggcgtaa	ttggtcgata	ggaacggctc	gtatcttgcc	360
aacgccaatt	tccatcatga	ggcggcggaa	gagttggggg	tgttggcggc	agaagtcgca	420
cagatggaaa	agaaataacc	gctgcnnatt	aagaacaacc	tgtatatcaa	caataacgct	480
tggggcgttt	gcgatccttc	cggtcagagc	gaattgacat	ttttcccatt	gtatatcggt	540
tcaaccaa	ttattttggt	tatcggcggc	attcccga	tgggcaaaga	ggcatttggt	600
actttggtaa	ggatnttata	ccnccngtta	cagcaaccgc	gtgtaaaact	tgggagagag	660
gangggttat	gcagcaatta	ttga				684

<210> 614
 <211> 227
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (5)..(5)
 <223> Xaa= any amino acid

<220>
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 <222> (13)..(13)
 <223> Xaa= any amino acid

<220>
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 <222> (28)..(28)
 <223> Xaa= any amino acid

<220>
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 <222> (58)..(58)
 <223> Xaa= any amino acid

<220>
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 <222> (149)..(149)
 <223> Xaa= any amino acid

<220>
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 <222> (205)..(205)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (208)..(209)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (221)..(221)
 <223> Xaa= any amino acid

<400> 614

Met Glu Ser Thr Xaa Ser Leu Gln Ala Asn Leu Tyr Xaa Arg Leu Thr
1 5 10 15

Pro Ala Gly Ala Phe Tyr Ala Val Ser Ser Asp Xaa Pro Ser Ala Gly
20 25 30

Lys Thr Leu Leu His Ser Leu Leu Lys Ala Asp Ala Asp Glu Met Val
35 40 45

Ser Ser Glu Lys Leu Leu Thr Trp Ala Xaa Thr Ala Asp Ile Asp Thr
50 55 60

Ala Leu Asn Leu Leu Tyr Arg Leu Gln Lys Leu Glu Phe Leu Tyr Gly
65 70 75 80

Asp Glu Asn Gly His Ser Asp Gly Ile Asn Leu Ser Asp Glu Gln Leu
85 90 95

Pro Leu Leu Met Glu Gln Leu Ser Gly Ser Gly Lys Ala Leu Leu Val
100 105 110

Asp Arg Asn Gly Leu Tyr Leu Ala Asn Ala Asn Phe His His Glu Ala
115 120 125

Ala Glu Glu Leu Gly Leu Leu Ala Ala Glu Val Ala Gln Met Glu Lys
130 135 140

Lys Tyr Arg Leu Xaa Ile Lys Asn Asn Leu Tyr Ile Asn Asn Asn Ala
145 150 155 160

Trp Gly Val Cys Asp Pro Ser Gly Gln Ser Glu Leu Thr Phe Phe Pro
165 170 175

Leu Tyr Ile Gly Ser Thr Lys Phe Ile Leu Val Ile Gly Gly Ile Pro
180 185 190

Asp Leu Gly Lys Glu Ala Phe Val Thr Leu Val Arg Xaa Leu Tyr Xaa
195 200 205

Xaa Leu Gln Gln Pro Arg Val Lys Leu Gly Arg Glu Xaa Gly Leu Cys
210 215 220

Ser Asn Tyr
225

<210> 615

<211> 8

<212> DNA

<213> *Neisseria gonorrhoeae*

<220>

<221> misc_feature

<222> (1)..(8)

<223> N= Unknown

<400> 615

nnnnnnnn

8

<210> 616

<211> 298

<212> PRT

<213> Neisseria gonorrhoeae

<400> 616

Met Arg Thr Lys Trp Ser Ala Val Arg Ser Cys Ser Arg Ala Asp Thr
1 5 10 15

Ala Asp Ile Asp Thr Ala Leu Asn Leu Leu Tyr Arg Leu Gln Lys Leu
20 25 30

Glu Phe Leu Tyr Gly Asp Glu Asn Gly His Ser Asp Gly Ile Asn Leu
35 40 45

Ser Asp Glu Gln Leu Pro Leu Leu Met Glu Gln Leu Ser Gly Ser Gly
50 55 60

Lys Ala Leu Leu Val Asp Arg Asn Gly Leu Tyr Leu Ala Asn Ala Asn
65 70 75 80

Phe His His Glu Ser Ala Glu Glu Leu Gly Leu Leu Ala Ala Glu Val
85 90 95

Ala Gln Met Glu Lys Lys Tyr Arg Leu Leu Ile Arg Asn Asn Leu Tyr
100 105 110

Ile Asn Asn Asn Ala Trp Gly Val Cys Asp Pro Ser Gly Gln Ser Glu
115 120 125

Leu Thr Phe Phe Pro Leu Tyr Ile Gly Ser Thr Lys Phe Ile Leu Val
130 135 140

Ile Ala Gly Ile Pro Asp Leu Ser Lys Gly Gly Ile Cys Tyr Phe Gly
145 150 155 160

Lys Asp Phe Ile Pro Pro Leu Gln Gln Pro Arg Val Lys Leu Gly Thr
165 170 175

Gly Gly Ile Met Arg Gln Leu Leu Ile Ser Ile Leu Glu Asp Leu Asn
180 185 190

Asn Thr Ser Thr Asp Ile Ile Ala Ser Ala Val Ile Ser Thr Asp Gly
195 200 205

Leu Pro Met Ala Thr Met Leu Pro Ser His Leu Asn Ser Asp Arg Val
210 215 220

Gly Ala Ile Ser Ala Thr Leu Leu Ala Leu Gly Ser Arg Ser Val Gln
225 230 235 240

Glu Leu Ala Cys Gly Glu Leu Glu Gln Val Met Ile Lys Gly Lys Ser

245

250

255

Gly Tyr Ile Leu Leu Ser Gln Ala Gly Lys Asp Ala Val Leu Val Leu
260 265 270

Val Ala Lys Glu Thr Gly Arg Leu Gly Leu Ile Leu Leu Asp Ala Lys
275 280 285

Arg Ala Ala Arg His Ile Ala Glu Ala Ile
290 295

<210> 617

<211> 642

<212> DNA

<213> Neisseria gonorrhoeae

<400> 617

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aaagcggatg cggacgaagt ggtcagcagt gagaagctgc tcgcggcgga caccgccgac 180
atcgataccg ctttgaacct gttgtaccgt ttgcaaaaac tcgaattcct ctatggcgat 240
gaaaacggtc attcagacgg catcaatttg tcggacgagc aattgccgtt gctgatggaa 300
caattgtccg gcagcggtaa ggcattattg gtcgatcgga acggtctgta tcttgccaac 360
gccaatctcc atcatgagtc ggcggaagag ttgggggttg tggcggcaga agtcgcacag 420
atggaaaaga aataccggct gctgattagg aacaacctgt atatcaaaa taacgcttg 480
ggcgtttgcg atccttcgga tcagagcgaa ttgacatttt tccattgta tatcggttca 540
accaaattta ttttggttat cgccggcatt cccgatttga gcaaagaggc atttggttact 600
ttggtaagga ttttataccg ccgttacagc aaccgcgtgt aa 642

<210> 618

<211> 213

<212> PRT

<213> Neisseria gonorrhoeae

<400> 618

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Pro Ala Gly Ala Phe Tyr Ala Val Ser Ser Asp Ala Pro Ser Ala Gly
20 25 30

Lys Thr Leu Leu Arg Ser Leu Leu Lys Ala Asp Ala Asp Glu Val Val
35 40 45

Ser Ser Glu Lys Leu Leu Ala Ala Asp Thr Ala Asp Ile Asp Thr Ala
50 55 60

Leu Asn Leu Leu Tyr Arg Leu Gln Lys Leu Glu Phe Leu Tyr Gly Asp
65 70 75 80

Glu Asn Gly His Ser Asp Gly Ile Asn Leu Ser Asp Glu Gln Leu Pro
85 90 95

Leu Leu Met Glu Gln Leu Ser Gly Ser Gly Lys Ala Leu Leu Val Asp
100 105 110

Arg Asn Gly Leu Tyr Leu Ala Asn Ala Asn Phe His His Glu Ser Ala
115 120 125

Glu Glu Leu Gly Leu Leu Ala Ala Glu Val Ala Gln Met Glu Lys Lys
130 135 140

Tyr Arg Leu Leu Ile Arg Asn Asn Leu Tyr Ile Asn Asn Asn Ala Trp
145 150 155 160

Gly Val Cys Asp Pro Ser Gly Gln Ser Glu Leu Thr Phe Phe Pro Leu
165 170 175

Tyr Ile Gly Ser Thr Lys Phe Ile Leu Val Ile Ala Gly Ile Pro Asp
180 185 190

Leu Ser Lys Glu Ala Phe Val Thr Leu Val Arg Ile Leu Tyr Arg Arg
195 200 205

Tyr Ser Asn Arg Val
210

<210> 619
<211> 408
<212> DNA
<213> Neisseria meningitidis

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acgacgctgc tggcactcgt ccccgctgctg accgtgatgg tggcggctgc ttcgattttc 180
cccgtgttcg accgctggtc ggattcgttc gtctccttcg tcaaccaaac cattgtgccg 240
caggcgcgga catggtgttc gactatatca atgcgttccg cgagcaggcg aaccggctga 300
cggcaatcgg cagcgtgatg ctggtcgtta cctcgtgat gctgattcgg acgatagaca 360
atacgttcaa ccgcatctgg acgggtcaaw tyccagcgtc cgtggatg 408

<210> 620
<211> 136
<212> PRT
<213> Neisseria meningitidis

<220>
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<222> (34)..(34)
<223> Xaa= any amino acid

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<222> (81)..(81)
<223> Xaa= any amino acid

<220>
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<222> (130)..(131)
<223> Xaa= any amino acid

<400> 620

Met Thr Phe Leu Gln Arg Leu Gln Gly Leu Ala Asp Asn Lys Ile Cys
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Ala Phe Ala Trp Phe Val Val Arg Arg Phe Asp Glu Glu Arg Val Pro
 20 25 30

Gln Xaa Ala Ala Ser Met Thr Phe Thr Thr Leu Leu Ala Leu Val Pro
 35 40 45

Val Leu Thr Val Met Val Ala Val Ala Ser Ile Phe Pro Val Phe Asp
 50 55 60

Arg Trp Ser Asp Ser Phe Val Ser Phe Val Asn Gln Thr Ile Val Pro
 65 70 75 80

Xaa Gly Ala Asp Met Val Phe Asp Tyr Ile Asn Ala Phe Arg Glu Gln
 85 90 95

Ala Asn Arg Leu Thr Ala Ile Gly Ser Val Met Leu Val Val Thr Ser
 100 105 110

Leu Met Leu Ile Arg Thr Ile Asp Asn Thr Phe Asn Arg Ile Trp Arg
 115 120 125

Val Xaa Xaa Gln Arg Pro Trp Met
 130 135

<210> 621
 <211> 1221
 <212> DNA
 <213> Neisseria meningitidis

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 acgacgctgc tggcactcgt ccccggtgctg accgtgatgg tggcggctgc ttcgattttc 180
 cccgtgttcg accgctgggc ggattcgttc gtctccttcg tcaaccaaac cattgtgccg 240
 cagggcgccg acatggtggt cgactatata aatgcgttcc gcgagcaggc gaaccggctg 300
 acggcaatcg gcagcgtgat gctggtcgtt acctcgctga tgctgattcg gacgatagac 360
 aatacgttca accgcatctg gcgggtcaat tcccagcgtc cgtggatgat gcagtttctc 420
 gtctattggg ctttactgac gttcggggccg ctgtctttgg gcgtgggcat ttcctttatg 480
 gtcggctcgg tacaggatgc cgcgcttgcc tcagggtgcgc cgcagtgggc gggcgcggtg 540
 cgaacggcgg cgacgctgac cttcatgacg cttttgctgt gggggctgta ccgcttcgtg 600
 ccaaaccgct tcgttcccgc gcggcaggcg tttgtcgggg ctttggcaac agcgttttgt 660
 ctggaaaccg cgcgctccct cttcacttgg tatatgggca atttcgacgg ctaccgctcg 720
 atttacggcg cgtttgccgc cgtgccgttt tttctgttgt ggctgaacct gttgtggacg 780
 ctggctcttg gcggcgcggt gctgacttct tcaactcct actggcaggg agaagcggtc 840
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 atgggctacg acgagttggg cgagcttttg gaaaagctgg cgcggcacgg ctacatctat 1020
 tccggcagac agggttgggt gttgaaaacg gggcgcgatt cgattgagtt gaacgaactc 1080
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 caggcgaaaa aacggcagta g 1221

<210> 622
 <211> 406
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 622

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		20					25						30		
Gln	Ala	Ala	Ala	Ser	Met	Thr	Phe	Thr	Thr	Leu	Leu	Ala	Leu	Val	Pro
	35						40					45			
Val	Leu	Thr	Val	Met	Val	Ala	Val	Ala	Ser	Ile	Phe	Pro	Val	Phe	Asp
	50				55						60				
Arg	Trp	Ser	Asp	Ser	Phe	Val	Ser	Phe	Val	Asn	Gln	Thr	Ile	Val	Pro
65				70					75					80	
Gln	Gly	Ala	Asp	Met	Val	Phe	Asp	Tyr	Ile	Asn	Ala	Phe	Arg	Glu	Gln
			85					90						95	
Ala	Asn	Arg	Leu	Thr	Ala	Ile	Gly	Ser	Val	Met	Leu	Val	Val	Thr	Ser
			100				105						110		
Leu	Met	Leu	Ile	Arg	Thr	Ile	Asp	Asn	Thr	Phe	Asn	Arg	Ile	Trp	Arg
	115					120						125			
Val	Asn	Ser	Gln	Arg	Pro	Trp	Met	Met	Gln	Phe	Leu	Val	Tyr	Trp	Ala
	130					135					140				
Leu	Leu	Thr	Phe	Gly	Pro	Leu	Ser	Leu	Gly	Val	Gly	Ile	Ser	Phe	Met
145				150					155					160	
Val	Gly	Ser	Val	Gln	Asp	Ala	Ala	Leu	Ala	Ser	Gly	Ala	Pro	Gln	Trp
			165					170						175	
Ser	Gly	Ala	Leu	Arg	Thr	Ala	Ala	Thr	Leu	Thr	Phe	Met	Thr	Leu	Leu
		180					185						190		
Leu	Trp	Gly	Leu	Tyr	Arg	Phe	Val	Pro	Asn	Arg	Phe	Val	Pro	Ala	Arg
	195					200						205			
Gln	Ala	Phe	Val	Gly	Ala	Leu	Ala	Thr	Ala	Phe	Cys	Leu	Glu	Thr	Ala
	210				215						220				
Arg	Ser	Leu	Phe	Thr	Trp	Tyr	Met	Gly	Asn	Phe	Asp	Gly	Tyr	Arg	Ser
225				230						235				240	
Ile	Tyr	Gly	Ala	Phe	Ala	Ala	Val	Pro	Phe	Phe	Leu	Leu	Trp	Leu	Asn
		245						250						255	
Leu	Leu	Trp	Thr	Leu	Val	Leu	Gly	Gly	Ala	Val	Leu	Thr	Ser	Ser	Leu
		260					265						270		

Ser Tyr Trp Gln Gly Glu Ala Phe Arg Arg Gly Phe Asp Ser Arg Gly
 275 280 285

Arg Phe Asp Asp Val Leu Lys Ile Leu Leu Leu Leu Asp Ala Ala Gln

290 295 300

Lys Glu Gly Lys Ala Leu Pro Val Gln Glu Phe Arg Arg His Ile Asn
 305 310 315 320

Met Gly Tyr Asp Glu Leu Gly Glu Leu Leu Glu Lys Leu Ala Arg His
 325 330 335

Gly Tyr Ile Tyr Ser Gly Arg Gln Gly Trp Val Leu Lys Thr Gly Ala
 340 345 350

Asp Ser Ile Glu Leu Asn Glu Leu Phe Lys Leu Phe Val Tyr Arg Pro
 355 360 365

Leu Pro Val Glu Arg Asp His Val Asn Gln Ala Val Asp Ala Val Met
 370 375 380

Thr Pro Cys Leu Gln Thr Leu Asn Met Thr Leu Ala Glu Phe Asp Ala
 385 390 395 400

Gln Ala Lys Lys Arg Gln
 405

<210> 623
 <211> 1227
 <212> DNA
 <213> Neisseria meningitidis

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 <223> N= Unknown

<220>
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<223> N= Unknown

<220>
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<222> (627)..(627)
<223> N= Unknown

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<223> N= Unknown

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<223> N= Unknown

<220>
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<223> N= Unknown

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acgacactgc tggcactcgt ccccggtgctg accgtgatgg tggcggtcgc ttcgattttc 180
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cagggcgccg acatggtntt cgactatatc aatgcgttcc gcgagcaggc gaaccggctg 300
acggcaatcg gcagcgtgat gctggtcggt acctcgcnga tgctgattcg gacgatagac 360
aatacgttca accgcatctg gcgggtcaat tcccagcgtc cgtggatgat gcagtttctc 420
gtctattggg ctttactgac gttcggggccg ctgtctttgg gcgtgggcat ttcctttatn 480
gtcggctcgg tacaggatgc cgcgcttgcc tcagggtgcgc cgcagtggtc gggcgcggtg 540
cgaacggcgg cgacgctgan cttcatgacg cttttgctgt gggggctgta ccgctncgtg 600
ccaaaccgct tcgttcccgc gcggcangcg tttgtcgggg ctttggcaac agcgttctgt 660
ctggaaaccg cgcgttccct ctttacttgg tatatgggca atttcgacgg ctaccgctcg 720
atttacggng cgtttgccgc cgtgccgttt tttctgttgt ggctgaacct gttgtggacg 780
ctgggtcttg gcggcgccgt gctgacttct tcaactctct actggcaggg agaagcgttc 840
cgcagggncg tcgactcgcg cggacggttt gacgacgtgt tgaaaatcct gctgcttctg 900
gatgcggcgc aaaaagaagg cnaagccttg cctgttcagg agttcagacg gcatatcaat 960
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tccggcagac agggttgggt gttgaaaacg ggggcggatt cgattgagtt gaacgaactc 1080
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gatgcggtaa tgatgccgtg tttgcagact ttgaacatga cgctggcaga gtttgacgct 1200
caggcgaaaa aacagcagca atcttga 1227

<210> 624
<211> 408
<212> PRT
<213> Neisseria meningitidis

<220>
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 <223> Xaa= any amino acid

<220>
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<220>
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 <222> (199)..(199)
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 <223> Xaa= any amino acid

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 <223> Xaa= any amino acid

<220>
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 <222> (308)..(308)
 <223> Xaa= any amino acid

<400> 624
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 Gln Ala Ala Ala Ser Met Thr Phe Thr Thr Leu Leu Ala Leu Val Pro
 35 40 45
 Val Leu Thr Val Met Val Ala Val Ala Ser Ile Phe Pro Val Phe Asp
 50 55 60
 Arg Trp Ser Asp Ser Phe Val Ser Phe Val Asn Gln Thr Ile Val Pro
 65 70 75 80
 Gln Gly Ala Asp Met Val Phe Asp Tyr Ile Asn Ala Phe Arg Glu Gln
 85 90 95

Ala Asn Arg Leu Thr Ala Ile Gly Ser Val Met Leu Val Val Thr Ser
 100 105 110
 Xaa Met Leu Ile Arg Thr Ile Asp Asn Thr Phe Asn Arg Ile Trp Arg
 115 120 125
 Val Asn Ser Gln Arg Pro Trp Met Met Gln Phe Leu Val Tyr Trp Ala
 130 135 140
 Leu Leu Thr Phe Gly Pro Leu Ser Leu Gly Val Gly Ile Ser Phe Xaa
 145 150 155 160
 Val Gly Ser Val Gln Asp Ala Ala Leu Ala Ser Gly Ala Pro Gln Trp
 165 170 175
 Ser Gly Ala Leu Arg Thr Ala Ala Thr Leu Xaa Phe Met Thr Leu Leu
 180 185 190
 Leu Trp Gly Leu Tyr Arg Xaa Val Pro Asn Arg Phe Val Pro Ala Arg
 195 200 205
 Xaa Ala Phe Val Gly Ala Leu Ala Thr Ala Phe Cys Leu Glu Thr Ala
 210 215 220
 Arg Ser Leu Phe Thr Trp Tyr Met Gly Asn Phe Asp Gly Tyr Arg Ser
 225 230 235 240
 Ile Tyr Gly Ala Phe Ala Ala Val Pro Phe Phe Leu Leu Trp Leu Asn
 245 250 255
 Leu Leu Trp Thr Leu Val Leu Gly Gly Ala Val Leu Thr Ser Ser Leu
 260 265 270
 Ser Tyr Trp Gln Gly Glu Ala Phe Arg Arg Xaa Phe Asp Ser Arg Gly
 275 280 285
 Arg Phe Asp Asp Val Leu Lys Ile Leu Leu Leu Leu Asp Ala Ala Gln
 290 295 300
 Lys Glu Gly Xaa Ala Leu Pro Val Gln Glu Phe Arg Arg His Ile Asn
 305 310 315 320
 Met Gly Tyr Asp Glu Leu Gly Glu Leu Leu Glu Lys Leu Ala Arg His
 325 330 335
 Gly Tyr Ile Tyr Ser Gly Arg Gln Gly Trp Val Leu Lys Thr Gly Ala
 340 345 350
 Asp Ser Ile Glu Leu Asn Glu Leu Phe Lys Leu Phe Val Tyr Arg Pro
 355 360 365
 Leu Pro Val Glu Arg Asp His Val Asn Gln Ala Val Asp Ala Val Met
 370 375 380
 Met Pro Cys Leu Gln Thr Leu Asn Met Thr Leu Ala Glu Phe Asp Ala
 385 390 395 400

Gln Ala Lys Lys Gln Gln Gln Ser
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<210> 625
<211> 8
<212> DNA
<213> Neisseria gonorrhoeae

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<222> (1)..(8)
<223> N= Unknown

<400> 625
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8

<210> 626
<211> 408
<212> PRT
<213> Neisseria gonorrhoeae

<400> 626
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Gln Ala Ala Ala Ser Met Thr Phe Thr Thr Leu Leu Ala Leu Val Pro
35 40 45
Val Leu Thr Val Met Val Ala Val Ala Ser Ile Phe Pro Val Phe Asp
50 55 60
Arg Trp Ser Asp Ser Phe Val Ser Phe Val Asn Gln Thr Ile Val Pro
65 70 75 80
Gln Gly Ala Asp Met Val Phe Asp Tyr Ile Asp Ala Phe Arg Asp Gln
85 90 95
Ala Asn Arg Leu Thr Ala Ile Gly Ser Val Met Leu Val Val Thr Ser
100 105 110
Leu Met Leu Ile Arg Thr Ile Asp Asn Ala Phe Asn Arg Ile Trp Arg
115 120 125
Val Asn Thr Gln Arg Pro Trp Met Met Gln Phe Leu Val Tyr Trp Ala
130 135 140
Leu Leu Thr Phe Gly Pro Leu Ser Leu Gly Val Gly Ile Ser Phe Met
145 150 155 160
Val Gly Ser Val Gln Asp Ser Val Leu Ser Ser Gly Ala Gln Gln Trp
165 170 175

Ala Asp Ala Leu Lys Thr Ala Ala Arg Leu Ala Phe Met Thr Leu Leu
 180 185 190
 Leu Trp Gly Leu Tyr Arg Phe Val Pro Asn Arg Phe Val Pro Ala Arg
 195 200 205
 Gln Ala Phe Val Gly Ala Leu Ile Thr Ala Phe Cys Leu Glu Thr Ala
 210 215 220
 Arg Phe Leu Phe Thr Trp Tyr Met Gly Asn Phe Asp Gly Tyr Arg Ser
 225 230 235 240
 Ile Tyr Gly Ala Phe Ala Ala Val Pro Phe Phe Leu Leu Trp Leu Asn
 245 250 255
 Leu Leu Trp Thr Leu Val Leu Gly Gly Ala Val Leu Thr Ser Ser Leu
 260 265 270
 Ser Tyr Trp Gln Gly Glu Ala Phe Arg Arg Gly Phe Asp Ser Arg Gly
 275 280 285
 Arg Phe Asp Asp Val Leu Lys Ile Leu Leu Leu Leu Asp Ala Ala Gln
 290 295 300
 Lys Glu Gly Arg Thr Leu Ser Val Gln Glu Phe Arg Arg His Ile Asn
 305 310 315 320
 Met Gly Tyr Asp Glu Leu Gly Glu Leu Leu Glu Lys Leu Ala Arg Tyr
 325 330 335
 Gly Tyr Ile Tyr Ser Gly Arg Gln Gly Trp Val Leu Lys Thr Gly Ala
 340 345 350
 Asp Ser Ile Glu Leu Ser Glu Leu Phe Lys Leu Phe Val Tyr Arg Pro
 355 360 365
 Leu Pro Val Glu Arg Asp His Val Asn Gln Ala Val Asp Ala Val Met
 370 375 380
 Thr Pro Cys Leu Gln Thr Leu Asn Met Thr Leu Ala Glu Phe Asp Ala
 385 390 395 400
 Gln Ala Lys Lys Gln Gln Gln Ser
 405

<210> 627

<211> 1227

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 627

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acgacactgc tggcactcgt ccccgacttg accgtaattg tcgcggtcgc ttcgattttc	180

cccgtgttcg	accgctggtc	ggattcgttc	gtctccttcg	tcaaccaaac	cattgtgccg	240
cagggcgcg	atatggtgtt	cgactatata	gacgcattcc	gcgatcaggc	aaaccggctg	300
accgccatcg	gcagcgtgat	gctggtcgta	acctcgctga	tgctgattcg	gacgatagac	360
aatgcgttca	accgcatctg	gcgggttaac	acgcaacgcc	cctggatgat	gcagttcctc	420
gtttattggg	cgttgctgac	tttcgggcct	ttgtctttgg	gtgtgggcat	ttcctttatg	480
gtcgggtcgg	ttcaagactc	cgtactctcc	tccggagcgc	aacaatgggc	ggacgcgttg	540
aagacggcgg	caaggctggc	tttcatgacg	cttttgctgt	gggggctgta	ccgcttcgtg	600
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ctggagacgg	cacgtttcct	gttcacctgg	tatatgggca	atttcgacgg	ctaccgctcg	720
atttacggcg	catttgccgc	cgtgccgttt	ttcctgctgt	ggttaaacct	gctgtggacg	780
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gatgcggcgc	aaaaagaagg	ccgaaccctg	tccgttcagg	agttcagacg	gcatatcaat	960
atgggttacg	atgaattggg	cgagcttttg	gaaaagctgg	cgcggtacgg	ctatatctat	1020
tccggcagac	agggctgggt	tttgaaaacg	ggggcggatt	cgattgagtt	gagcgaactc	1080
ttcaagctct	tcgtgtaccg	cccgttgctt	gtggaaaggg	atcatgtgaa	ccaagctgtc	1140
gatgcggtaa	tgacgccgtg	tttgacagct	ttgaacatga	cgctggcgga	gtttgacgct	1200
caggcgaaaa	aacagcagca	gtcttga				1227

<210> 628
 <211> 408
 <212> PRT
 <213> *Neisseria gonorrhoeae*

<400> 628
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 Gln Ala Ala Ala Ser Met Thr Phe Thr Thr Leu Leu Ala Leu Val Pro
 35 40 45
 Val Leu Thr Val Met Val Ala Val Ala Ser Ile Phe Pro Val Phe Asp
 50 55 60
 Arg Trp Ser Asp Ser Phe Val Ser Phe Val Asn Gln Thr Ile Val Pro
 65 70 75 80
 Gln Gly Ala Asp Met Val Phe Asp Tyr Ile Asp Ala Phe Arg Asp Gln
 85 90 95
 Ala Asn Arg Leu Thr Ala Ile Gly Ser Val Met Leu Val Val Thr Ser
 100 105 110
 Leu Met Leu Ile Arg Thr Ile Asp Asn Ala Phe Asn Arg Ile Trp Arg
 115 120 125
 Val Asn Thr Gln Arg Pro Trp Met Met Gln Phe Leu Val Tyr Trp Ala
 130 135 140
 Leu Leu Thr Phe Gly Pro Leu Ser Leu Gly Val Gly Ile Ser Phe Met
 145 150 155 160

Val Gly Ser Val Gln Asp Ser Val Leu Ser Ser Gly Ala Gln Gln Trp
165 170 175
Ala Asp Ala Leu Lys Thr Ala Ala Arg Leu Ala Phe Met Thr Leu Leu
180 185 190
Leu Trp Gly Leu Tyr Arg Phe Val Pro Asn Arg Phe Val Pro Ala Arg
195 200 205
Gln Ala Phe Val Gly Ala Leu Ile Thr Ala Phe Cys Leu Glu Thr Ala
210 215 220
Arg Phe Leu Phe Thr Trp Tyr Met Gly Asn Phe Asp Gly Tyr Arg Ser
225 230 235 240
Ile Tyr Gly Ala Phe Ala Ala Val Pro Phe Phe Leu Leu Trp Leu Asn
245 250 255
Leu Leu Trp Thr Leu Val Leu Gly Gly Ala Val Leu Thr Ser Ser Leu
260 265 270
Ser Tyr Trp Gln Gly Glu Ala Phe Arg Arg Gly Phe Asp Ser Arg Gly
275 280 285
Arg Phe Asp Asp Val Leu Lys Ile Leu Leu Leu Leu Asp Ala Ala Gln
290 295 300
Lys Glu Gly Arg Thr Leu Ser Val Gln Glu Phe Arg Arg His Ile Asn
305 310 315 320
Met Gly Tyr Asp Glu Leu Gly Glu Leu Leu Glu Lys Leu Ala Arg Tyr
325 330 335
Gly Tyr Ile Tyr Ser Gly Arg Gln Gly Trp Val Leu Lys Thr Gly Ala
340 345 350
Asp Ser Ile Glu Leu Ser Glu Leu Phe Lys Leu Phe Val Tyr Arg Pro
355 360 365
Leu Pro Val Glu Arg Asp His Val Asn Gln Ala Val Asp Ala Val Met
370 375 380
Thr Pro Cys Leu Gln Thr Leu Asn Met Thr Leu Ala Glu Phe Asp Ala
385 390 395 400
Gln Ala Lys Lys Gln Gln Gln Ser
405

<210> 629

<211> 228

<212> DNA

<213> *Neisseria meningitidis*

<400> 629

agacacgccc gccgcatccg catcgacacc gccatcaacc ccgaactgga agccctcgcc

60

gaacacctcc	actaccaatg	gcagggcttc	ctctggctca	gcaccgatat	gcgtcaggaa	120
atttccgccc	tcgtcatcct	gctgcaacgc	acccgccgca	aatggctgga	tgcccacgaa	180
cgccaacacc	tgcgccaaag	cctgcttgaa	acacgggaac	acggctga		228

<210> 630
 <211> 75
 <212> PRT
 <213> Neisseria meningitidis

<400> 630
 Arg His Ala Arg Arg Ile Arg Ile Asp Thr Ala Ile Asn Pro Glu Leu
 1 5 10 15

Glu Ala Leu Ala Glu His Leu His Tyr Gln Trp Gln Gly Phe Leu Trp
 20 25 30

Leu Ser Thr Asp Met Arg Gln Glu Ile Ser Ala Leu Val Ile Leu Leu
 35 40 45

Gln Arg Thr Arg Arg Lys Trp Leu Asp Ala His Glu Arg Gln His Leu
 50 55 60

Arg Gln Ser Leu Leu Glu Thr Arg Glu His Gly
 65 70 75

<210> 631
 <211> 1128
 <212> DNA
 <213> Neisseria meningitidis

<400> 631	
atgaacacct	cgcaacgcaa ccgcctcgtc agccgctggc tcaactccta cgaacgctac 60
cgctaccgcc	gcctcatcca cgccgtccgg ctccggcggg ccgtcctgtt cgccaccgcc 120
tccgcccggc	tgctccacct ccaacacggc gactggatag ggatgaccgt ctccgtcgtc 180
ctcggcatgc	tccagtttca aggggcgatt tactccaagg cggaggaaac tatgctcggc 240
acgggtcatc	ggctggggcg ggggttgggc gttttatggc tgaaccagca ttatttccac 300
ggcaacctcc	tcttctacct caccgtcggc acggcaagcg cactggccgg ctggggcggc 360
gtcggcaaaa	acggctacgt ccctatgctg gcagggctga cgatgtgtat gctcatcggc 420
gacaacggca	gcgaatggct cgacacggga ctcatgcgcg ccatgaacgt cctcatcggc 480
gcggccatcg	ccatcgccgc cgccaaactg ctgccgctga aatccacact gatgtggcgt 540
ttcatgcttg	ccgacaacct ggccgactgc agcaaatga ttgccgaaat cagcaacggc 600
aggcgcatga	cccgcgaacg cctcgaggag aacatggcga aaatgcgcca aatcaacgca 660
cgcattggtc	aaagccgcag ccattctgcc gccacatcgg gcgaaagccg catcagcccc 720
gccatgatgg	aagccatgca gcacgcccac cgtaaaatcg tcaacaccac cgagctgctc 780
ctgaccaccg	ccgccaagct gcaatctccc aaactcaacg gcagcgaaat cgggctgctt 840
gaccgccact	tcacactgct ccaaaccgac ctgcaacaaa ccgtcgccct tatcaacggc 900
agacacgccc	gccgcatccg catcgacacc gccatcaacc ccgaactgga agccctcgcc 960
gaacacctcc	actaccaatg gcagggcttc ctctggctca gcaccaatat gcgtcaggaa 1020
atttccgccc	tcgtcatcct gctgcaacgc acccgccgca aatggctgga tgcccacgaa 1080
cgccaacacc	tgcgccaaag cctgcttgaa acacgggaac acggctga 1128

<210> 632
 <211> 375
 <212> PRT
 <213> Neisseria meningitidis

<400> 632

Met Asn Thr Ser Gln Arg Asn Arg Leu Val Ser Arg Trp Leu Asn Ser
1 5 10 15

Tyr Glu Arg Tyr Arg Tyr Arg Arg Leu Ile His Ala Val Arg Leu Gly
20 25 30

Gly Ala Val Leu Phe Ala Thr Ala Ser Ala Arg Leu Leu His Leu Gln
35 40 45

His Gly Glu Trp Ile Gly Met Thr Val Phe Val Val Leu Gly Met Leu
50 55 60

Gln Phe Gln Gly Ala Ile Tyr Ser Lys Ala Val Glu Arg Met Leu Gly
65 70 75 80

Thr Val Ile Gly Leu Gly Ala Gly Leu Gly Val Leu Trp Leu Asn Gln
85 90 95

His Tyr Phe His Gly Asn Leu Leu Phe Tyr Leu Thr Val Gly Thr Ala
100 105 110

Ser Ala Leu Ala Gly Trp Ala Ala Val Gly Lys Asn Gly Tyr Val Pro
115 120 125

Met Leu Ala Gly Leu Thr Met Cys Met Leu Ile Gly Asp Asn Gly Ser
130 135 140

Glu Trp Leu Asp Ser Gly Leu Met Arg Ala Met Asn Val Leu Ile Gly
145 150 155 160

Ala Ala Ile Ala Ile Ala Ala Ala Lys Leu Leu Pro Leu Lys Ser Thr
165 170 175

Leu Met Trp Arg Phe Met Leu Ala Asp Asn Leu Ala Asp Cys Ser Lys
180 185 190

Met Ile Ala Glu Ile Ser Asn Gly Arg Arg Met Thr Arg Glu Arg Leu
195 200 205

Glu Glu Asn Met Ala Lys Met Arg Gln Ile Asn Ala Arg Met Val Lys
210 215 220

Ser Arg Ser His Leu Ala Ala Thr Ser Gly Glu Ser Arg Ile Ser Pro
225 230 235 240

Ala Met Met Glu Ala Met Gln His Ala His Arg Lys Ile Val Asn Thr
245 250 255

Thr Glu Leu Leu Leu Thr Thr Ala Ala Lys Leu Gln Ser Pro Lys Leu
260 265 270

Asn Gly Ser Glu Ile Arg Leu Leu Asp Arg His Phe Thr Leu Leu Gln
275 280 285

Thr Asp Leu Gln Gln Thr Val Ala Leu Ile Asn Gly Arg His Ala Arg
290 295 300

Arg Ile Arg Ile Asp Thr Ala Ile Asn Pro Glu Leu Glu Ala Leu Ala
305 310 315 320

Glu His Leu His Tyr Gln Trp Gln Gly Phe Leu Trp Leu Ser Thr Asn
325 330 335

Met Arg Gln Glu Ile Ser Ala Leu Val Ile Leu Leu Gln Arg Thr Arg
340 345 350

Arg Lys Trp Leu Asp Ala His Glu Arg Gln His Leu Arg Gln Ser Leu
355 360 365

Leu Glu Thr Arg Glu His Gly
370 375

<210> 633
<211> 1128
<212> DNA
<213> Neisseria meningitidis

<400> 633
atgaacacct cgcaacgcaa ccgcctcgtc agccgctggc tcaactccta cgaacgctac 60
cgctaccgcc gcctcatcca cgccgtccgg ctccggcggg ccgtcctgtt cgccaccgcc 120
tccgcccggc tgctccacct ccaacacggc gaggggatag ggatgaccgt cttcgctcgtc 180
ctcggcatgc tccagtttca aggggcgatt tactccaagg cgggtggaacg tatgctcggc 240
acggtcacgc ggctggggcg ggggttgggc gttttatggc tgaaccagca ttatttccac 300
ggcaacctcc tcttctacct caccgtcggc acggcaagcg cactggccgg ctgggcccgg 360
gtcggcaaaa acggctacgt ccctatgctg gcggggctga cgatgtgcat gctcatcggc 420
gacaacggca gcgaatggtt cgacagcggc ctgatgcgcg cgatgaacgt cctcatcggc 480
gcgcccatcg ccctgcgcgc cgccaaactg ctgccgctga aatccacact gatgtggcgt 540
ttcatgcttg ccgacaacct gaccgactgc agcaaaatga ttgccgaaat cagcaacggc 600
aggcgcatga ccgcggaacg cctcgaagag aacatggcga aaatgcgcca aatcaacgca 660
cgcatggtca aaagccgcag ccacctcgcc gccacatcgg gcgaaagccg catcagcccc 720
gcatgatgg aagccatgca gcacgcccac cgtaaaattg tcaacaccac cgagctgctc 780
ctgaccaccg ccgccaagct gcaatctccc aaactcaacg gcagcgaaat ccggctgctt 840
gaccgccact tcacactgct ccaaaccgac ctgcaacaaa ccgtcgccct tatcaacggc 900
agacacgccc gccgcatccg catcgacacc gccatcaacc ccgaactgga agccctcgcc 960
gaacacctcc actaccaatg gcagggttct ctctggctca gcaccaatat gcgtcaggaa 1020
atttcgccc tcgtcatcct gctgcaacgc accgcgcgca aatggctgga tgcccacgaa 1080
cgccaacacc tgcgccaag cctgcttgaa acacgggaac acagttga 1128

<210> 634
<211> 375
<212> PRT
<213> Neisseria meningitidis

<400> 634
Met Asn Thr Ser Gln Arg Asn Arg Leu Val Ser Arg Trp Leu Asn Ser
1 5 10 15

Tyr Glu Arg Tyr Arg Tyr Arg Arg Leu Ile His Ala Val Arg Leu Gly
20 25 30

Gly Ala Val Leu Phe Ala Thr Ala Ser Ala Arg Leu Leu His Leu Gln
 35 40 45
 His Gly Glu Trp Ile Gly Met Thr Val Phe Val Val Leu Gly Met Leu
 50 55 60
 Gln Phe Gln Gly Ala Ile Tyr Ser Lys Ala Val Glu Arg Met Leu Gly
 65 70 75 80
 Thr Val Ile Gly Leu Gly Ala Gly Leu Gly Val Leu Trp Leu Asn Gln
 85 90 95
 His Tyr Phe His Gly Asn Leu Leu Phe Tyr Leu Thr Val Gly Thr Ala
 100 105 110
 Ser Ala Leu Ala Gly Trp Ala Ala Val Gly Lys Asn Gly Tyr Val Pro
 115 120 125
 Met Leu Ala Gly Leu Thr Met Cys Met Leu Ile Gly Asp Asn Gly Ser
 130 135 140
 Glu Trp Phe Asp Ser Gly Leu Met Arg Ala Met Asn Val Leu Ile Gly
 145 150 155 160
 Ala Ala Ile Ala Ile Ala Ala Ala Lys Leu Leu Pro Leu Lys Ser Thr
 165 170 175
 Leu Met Trp Arg Phe Met Leu Ala Asp Asn Leu Thr Asp Cys Ser Lys
 180 185 190
 Met Ile Ala Glu Ile Ser Asn Gly Arg Arg Met Thr Arg Glu Arg Leu
 195 200 205
 Glu Glu Asn Met Ala Lys Met Arg Gln Ile Asn Ala Arg Met Val Lys
 210 215 220
 Ser Arg Ser His Leu Ala Ala Thr Ser Gly Glu Ser Arg Ile Ser Pro
 225 230 235 240
 Ala Met Met Glu Ala Met Gln His Ala His Arg Lys Ile Val Asn Thr
 245 250 255
 Thr Glu Leu Leu Leu Thr Thr Ala Ala Lys Leu Gln Ser Pro Lys Leu
 260 265 270
 Asn Gly Ser Glu Ile Arg Leu Leu Asp Arg His Phe Thr Leu Leu Gln
 275 280 285
 Thr Asp Leu Gln Gln Thr Val Ala Leu Ile Asn Gly Arg His Ala Arg
 290 295 300
 Arg Ile Arg Ile Asp Thr Ala Ile Asn Pro Glu Leu Glu Ala Leu Ala
 305 310 315 320

Glu His Leu His Tyr Gln Trp Gln Gly Phe Leu Trp Leu Ser Thr Asn
325 330 335

Met Arg Gln Glu Ile Ser Ala Leu Val Ile Leu Leu Gln Arg Thr Arg
340 345 350

Arg Lys Trp Leu Asp Ala His Glu Arg Gln His Leu Arg Gln Ser Leu
355 360 365

Leu Glu Thr Arg Glu His Ser
370 375

<210> 635
<211> 8
<212> DNA
<213> Neisseria gonorrhoeae

<220>
<221> misc_feature
<222> (1)..(8)
<223> N= Unknown

<400> 635
nnnnnnnn

8

<210> 636
<211> 409
<212> PRT
<213> Neisseria gonorrhoeae

<400> 636
Met Ser Gly Val Arg Phe Pro Ser Pro Ala Pro Ile Pro Ser Thr Asp
1 5 10 15

Pro Pro Ser Gly Ser Leu Cys Phe Phe Thr Phe Pro Leu Gln Thr Ala
20 25 30

Ser Asp Met Asn Ser Ser Gln Arg Lys Arg Leu Ser Gly Arg Trp Leu
35 40 45

Asn Ser Tyr Glu Arg Tyr Arg His Arg Arg Leu Ile His Ala Val Arg
50 55 60

Leu Gly Gly Thr Val Leu Phe Ala Thr Ala Leu Ala Arg Leu Leu His
65 70 75 80

Leu Gln His Gly Glu Trp Ile Gly Met Thr Val Phe Val Val Leu Gly
85 90 95

Met Leu Gln Phe Gln Gly Ala Ile Tyr Ser Asn Ala Val Glu Arg Met
100 105 110

Leu Gly Thr Val Ile Gly Leu Gly Ala Gly Leu Gly Val Leu Trp Leu
115 120 125

Asn Gln His Tyr Phe His Gly Asn Leu Leu Phe Tyr Leu Thr Ile Gly
 130 135 140
 Thr Ala Ser Ala Leu Ala Gly Trp Ala Ala Val Gly Lys Asn Gly Tyr
 145 150 155 160
 Val Pro Met Leu Ala Gly Leu Thr Met Cys Met Leu Ile Gly Asp Asn
 165 170 175
 Gly Ser Glu Trp Leu Asp Ser Gly Leu Met Arg Ala Met Asn Val Leu
 180 185 190
 Ile Gly Ala Ala Ile Ala Ile Ala Ala Lys Leu Leu Pro Leu Lys
 195 200 205
 Ser Thr Leu Met Trp Arg Phe Met Leu Ala Asp Asn Leu Ala Asp Cys
 210 215 220
 Ser Lys Met Ile Ala Glu Ile Ser Asn Gly Arg Arg Met Thr Arg Glu
 225 230 235 240
 Arg Leu Glu Gln Asn Met Val Lys Met Arg Gln Ile Asn Ala Arg Met
 245 250 255
 Val Lys Ser Arg Ser His Leu Ala Ala Thr Ser Gly Glu Ser Arg Ile
 260 265 270
 Ser Pro Ser Met Met Glu Ala Met Gln His Ala His Arg Lys Ile Val
 275 280 285
 Asn Thr Thr Glu Leu Leu Leu Thr Thr Ala Ala Lys Leu Gln Ser Pro
 290 295 300
 Lys Leu Asn Gly Ser Glu Ile Arg Leu Leu Asp Arg His Phe Thr Leu
 305 310 315 320
 Leu Gln Thr Asp Leu Gln Gln Thr Ala Ala Leu Ile Asn Gly Arg His
 325 330 335
 Ala Arg Arg Ile Arg Ile Asp Thr Ala Ile Asn Pro Glu Leu Glu Ala
 340 345 350
 Leu Ala Glu His Leu His Tyr Gln Trp Gln Gly Phe Leu Trp Leu Ser
 355 360 365
 Thr Asn Met Arg Gln Glu Ile Ser Ala Leu Val Ile Pro Leu Gln Arg
 370 375 380
 Thr Arg Arg Lys Trp Leu Asp Ala His Glu Arg Gln His Leu Arg Gln
 385 390 395 400
 Ser Leu Leu Glu Thr Arg Glu His Gly
 405

<210> 637

<211> 1128
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 637
 atgaactcct cgcaacgcaa acgcctttcc ggccgctggc tcaactccta cgaacgctac 60
 cgccaccgcc gcctcatata tgccgtgcgg ctccggcgaa ccgtcctggt cgccaccgca 120
 ctccgccggc tactccacct ccaacacggc gaatggatag ggatgaccgt cttcgtcgtc 180
 ctccggcatgc tccagttcca aggcgcgatt tactccaacg cgggtggaacg tatgctcggc 240
 acggctcatcg ggctggggcg gggtttgggc gttttatggc tgaaccagca ttatttccac 300
 ggcaacctcc tcttctacct gaccatcggc acggcaagcg cactggccgg ctggggggcg 360
 gtcggcaaaa acggctacgt ccctatgctg gcggggctga cgatgtgcat gctcatcggc 420
 gacaacggca gcaaatggct cgacagcggc ctgatgcgcg cgatgaacgt cctcatcggc 480
 gccgccatcg ccattgccgc cgccaaactg ctgccgctga aatccacact gatgtggcgt 540
 ttcatgcttg ccgacaacct ggccgactgc agcaaatga ttgccgaaat cagcaacggc 600
 aggcgtatga cgcgcgaacg tttggagcag aatatggcga aaatgcgcca aatcaacgca 660
 cgcattggtca aaagccgcag ccacctcgcc gccacatcgg gcgaaagcgg catcagcccc 720
 tccatgatgg aagccatgca gcacgcccac cgcaaatcg tcaacaccac cgagctgctc 780
 ctgaccaccg ccgccaagct gcaatctccc aaactcaacg gcagcgaaat ccggctgctc 840

gaccgccact tcacactgct ccaaaccgac ctgcaacaaa ccgccgcct catcaacggc 900
 agacacgccc gccgcatccg catcgacacc gccatcaacc ccgaactgga agccctcgcc 960
 gaacacctcc actaccaatg gcagggttc ctctggctca gcaccaatat gcgtcaggaa 1020
 atttcgccc tgcctatcct gctgcaacgc acccgccgca aatggctgga tgcccacgaa 1080
 cgccaacacc tgcgccaag cctgcttgaa acacgggaac acggctga 1128

<210> 638
 <211> 375
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 638
 Met Asn Ser Ser Gln Arg Lys Arg Leu Ser Gly Arg Trp Leu Asn Ser
 1 5 10 15
 Tyr Glu Arg Tyr Arg His Arg Arg Leu Ile His Ala Val Arg Leu Gly
 20 25 30
 Gly Thr Val Leu Phe Ala Thr Ala Leu Ala Arg Leu Leu His Leu Gln
 35 40 45
 His Gly Glu Trp Ile Gly Met Thr Val Phe Val Val Leu Gly Met Leu
 50 55 60
 Gln Phe Gln Gly Ala Ile Tyr Ser Asn Ala Val Glu Arg Met Leu Gly
 65 70 75 80
 Thr Val Ile Gly Leu Gly Ala Gly Leu Gly Val Leu Trp Leu Asn Gln
 85 90 95
 His Tyr Phe His Gly Asn Leu Leu Phe Tyr Leu Thr Ile Gly Thr Ala
 100 105 110
 Ser Ala Leu Ala Gly Trp Ala Ala Val Gly Lys Asn Gly Tyr Val Pro
 115 120 125

Met Leu Ala Gly Leu Thr Met Cys Met Leu Ile Gly Asp Asn Gly Ser
 130 135 140
 Glu Trp Leu Asp Ser Gly Leu Met Arg Ala Met Asn Val Leu Ile Gly
 145 150 155 160
 Ala Ala Ile Ala Ile Ala Ala Ala Lys Leu Leu Pro Leu Lys Ser Thr
 165 170 175
 Leu Met Trp Arg Phe Met Leu Ala Asp Asn Leu Ala Asp Cys Ser Lys
 180 185 190
 Met Ile Ala Glu Ile Ser Asn Gly Arg Arg Met Thr Arg Glu Arg Leu
 195 200 205
 Glu Gln Asn Met Val Lys Met Arg Gln Ile Asn Ala Arg Met Val Lys
 210 215 220
 Ser Arg Ser His Leu Ala Ala Thr Ser Gly Glu Ser Arg Ile Ser Pro
 225 230 235 240
 Ser Met Met Glu Ala Met Gln His Ala His Arg Lys Ile Val Asn Thr
 245 250 255
 Thr Glu Leu Leu Leu Thr Thr Ala Ala Lys Leu Gln Ser Pro Lys Leu
 260 265 270
 Asn Gly Ser Glu Ile Arg Leu Leu Asp Arg His Phe Thr Leu Leu Gln
 275 280 285
 Thr Asp Leu Gln Gln Thr Ala Ala Leu Ile Asn Gly Arg His Ala Arg
 290 295 300
 Arg Ile Arg Ile Asp Thr Ala Ile Asn Pro Glu Leu Glu Ala Leu Ala
 305 310 315 320
 Glu His Leu His Tyr Gln Trp Gln Gly Phe Leu Trp Leu Ser Thr Asn
 325 330 335
 Met Arg Gln Glu Ile Ser Ala Leu Val Ile Leu Leu Gln Arg Thr Arg
 340 345 350
 Arg Lys Trp Leu Asp Ala His Glu Arg Gln His Leu Arg Gln Ser Leu
 355 360 365
 Leu Glu Thr Arg Glu His Gly
 370 375

<210> 639

<211> 710

<212> DNA

<213> Neisseria meningitidis

<400> 639

gccgaagaca cgcgcggttac cgcacagctt ttgagcgcgt acggcattca gggcaaactc 60
 gtcagtgtgc gcgaacacaa cgaacggcag atggcggaca agattgtcgg ctatctttca 120

gacggcatgg	ttgtggcaca	ggtttccgat	gcgggtacgc	cggccgtgtg	cgacccgggc	180
gcgaaactcg	cccgccgctg	gcgtgaggcc	gggtttaaag	tcgttcccgt	cgtgggcgca	240
acgcggtgat	ggcggtttt	agcgtggccg	gtgtggaagg	atccgatttt	tatttcaacg	300
gttttgtacc	gccgaaatcg	ggagaacgca	ggaaactgtt	tgccaaatgg	gtgcgggcgg	360
cgtttcttat	cgtcatgttt	gaaacgccgc	accgcacggt	tcgagcgctt	gccgatatgg	420
cggaactgtt	ccccgaacgc	cgattaatgc	tggcgcgcgga	aattacgaaa	acgtttgaaa	480
cgttcttaag	cggcacgggt	ggggaaattc	agacggcatt	gtctgccgac	ggcgaccaat	540
cgcgcggcga	gatggtgttg	gtgctttatc	cggcgcgagga	tgaaaaacac	gaaggcttgt	600
ccgagtcgcg	gcaaaacatc	atgaaaatcc	tcacagccga	gctgccgacc	aaacaggcgg	660
cggagcttgc	tgccaaaatc	acgggcgagg	gaaagaaagc	tttgtacgat		710

<210> 640
 <211> 237
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (81)..(81)
 <223> Xaa= any amino acid

<400> 640

Ala	Glu	Asp	Thr	Arg	Val	Thr	Ala	Gln	Leu	Leu	Ser	Ala	Tyr	Gly	Ile	1	5	10	15
Gln	Gly	Lys	Leu	Val	Ser	Val	Arg	Glu	His	Asn	Glu	Arg	Gln	Met	Ala	20	25	30	
Asp	Lys	Ile	Val	Gly	Tyr	Leu	Ser	Asp	Gly	Met	Val	Val	Ala	Gln	Val	35	40	45	
Ser	Asp	Ala	Gly	Thr	Pro	Ala	Val	Cys	Asp	Pro	Gly	Ala	Lys	Leu	Ala	50	55	60	
Arg	Arg	Val	Arg	Glu	Ala	Gly	Phe	Lys	Val	Val	Pro	Val	Val	Gly	Ala	65	70	75	80
Xaa	Ala	Val	Met	Ala	Ala	Leu	Ser	Val	Ala	Gly	Val	Glu	Gly	Ser	Asp	85	90	95	
Phe	Tyr	Phe	Asn	Gly	Phe	Val	Pro	Pro	Lys	Ser	Gly	Glu	Arg	Arg	Lys	100	105	110	
Leu	Phe	Ala	Lys	Trp	Val	Arg	Ala	Ala	Phe	Pro	Ile	Val	Met	Phe	Glu	115	120	125	
Thr	Pro	His	Arg	Ile	Gly	Ala	Ala	Leu	Ala	Asp	Met	Ala	Glu	Leu	Phe	130	135	140	
Pro	Glu	Arg	Arg	Leu	Met	Leu	Ala	Arg	Glu	Ile	Thr	Lys	Thr	Phe	Glu	145	150	155	160
Thr	Phe	Leu	Ser	Gly	Thr	Val	Gly	Glu	Ile	Gln	Thr	Ala	Leu	Ser	Ala	165	170	175	

Asp Gly Asp Gln Ser Arg Gly Glu Met Val Leu Val Leu Tyr Pro Ala
180 185 190

Gln Asp Glu Lys His Glu Gly Leu Ser Glu Ser Ala Gln Asn Ile Met
195 200 205

Lys Ile Leu Thr Ala Glu Leu Pro Thr Lys Gln Ala Ala Glu Leu Ala
210 215 220

Ala Lys Ile Thr Gly Glu Gly Lys Lys Ala Leu Tyr Asp
225 230 235

<210> 641
<211> 876
<212> DNA
<213> Neisseria meningitidis

<400> 641
atgtttcaga aacatttgca gaaagcctcc gacagcgtcg tcggagggac attatacgtg 60
gttgccacgc ccatcgga tttggcggac attaccctgc gcgctttggc ggtattgcaa 120
aaggcggaca tcatctgtgc cgaagacacg cgcgttaccg cacagctttt gagcgcgtac 180
ggcattcagg gcaaactcgt cagtgtgcgc gaacacaacg aacggcagat ggcggacaag 240

attgtcggct atctttcaga cggcatgggt gtggcacagg tttccgatgc gggtagcgcg 300
gccgtgtgcg acccgggcgc gaaactcgcc cgccgcgtgc gtgaggccgg gtttaaagtc 360
gttcccgtcg tgggcgcaag cgcggtgatg gcggctttga gcgtggccgg tgtggaagga 420
tccgattttt atttcaacgg ttttgtaccg ccgaaatcgg gagaacgcag gaaactgttt 480
gccaaatggg tgcgggcggc gtttcctatc gtcattgttt aaacgcgcga ccgcatcggt 540
gcgacgcttg ccgatatggc ggaactgttc cccgaacgcc gattaatgct ggcgcgcgaa 600
attacgaaaa cgtttgaaac gttcttaagc ggcacgggtg gggaaattca gacggcattg 660
tctgccgacg gcaaccaatc gcgcggcgag atggtgttgg tgctttatcc ggcgcaggat 720
gaaaaacacg aaggcttgct cgagtcgcgc caaaacatca tgaaaatcct cacagccgag 780
ctgccgacca aacaggcggc ggagcttgct gccaaaatca cgggcgaggg aaagaaagct 840
ttgtacgatc tggctctgtc ttggaaaaac aaatag 876

<210> 642
<211> 291
<212> PRT
<213> Neisseria meningitidis

<400> 642
Met Phe Gln Lys His Leu Gln Lys Ala Ser Asp Ser Val Val Gly Gly
1 5 10 15

Thr Leu Tyr Val Val Ala Thr Pro Ile Gly Asn Leu Ala Asp Ile Thr
20 25 30

Leu Arg Ala Leu Ala Val Leu Gln Lys Ala Asp Ile Ile Cys Ala Glu
35 40 45

Asp Thr Arg Val Thr Ala Gln Leu Leu Ser Ala Tyr Gly Ile Gln Gly
50 55 60

Lys Leu Val Ser Val Arg Glu His Asn Glu Arg Gln Met Ala Asp Lys
65 70 75 80

Ile Val Gly Tyr Leu Ser Asp Gly Met Val Val Ala Gln Val Ser Asp
 85 90 95
 Ala Gly Thr Pro Ala Val Cys Asp Pro Gly Ala Lys Leu Ala Arg Arg
 100 105 110
 Val Arg Glu Ala Gly Phe Lys Val Val Pro Val Val Gly Ala Ser Ala
 115 120 125
 Val Met Ala Ala Leu Ser Val Ala Gly Val Glu Gly Ser Asp Phe Tyr
 130 135 140
 Phe Asn Gly Phe Val Pro Pro Lys Ser Gly Glu Arg Arg Lys Leu Phe
 145 150 155 160
 Ala Lys Trp Val Arg Ala Ala Phe Pro Ile Val Met Phe Glu Thr Pro
 165 170 175
 His Arg Ile Gly Ala Thr Leu Ala Asp Met Ala Glu Leu Phe Pro Glu
 180 185 190
 Arg Arg Leu Met Leu Ala Arg Glu Ile Thr Lys Thr Phe Glu Thr Phe
 195 200 205

 Leu Ser Gly Thr Val Gly Glu Ile Gln Thr Ala Leu Ser Ala Asp Gly
 210 215 220
 Asn Gln Ser Arg Gly Glu Met Val Leu Val Leu Tyr Pro Ala Gln Asp
 225 230 235 240
 Glu Lys His Glu Gly Leu Ser Glu Ser Ala Gln Asn Ile Met Lys Ile
 245 250 255
 Leu Thr Ala Glu Leu Pro Thr Lys Gln Ala Ala Glu Leu Ala Ala Lys
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 Ile Thr Gly Glu Gly Lys Lys Ala Leu Tyr Asp Leu Ala Leu Ser Trp
 275 280 285

 Lys Asn Lys
 290

<210> 643
 <211> 8
 <212> DNA
 <213> *Neisseria gonorrhoeae*

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<210> 644

<211> 300
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 644

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Lys Ala Ser Asp Ser Val Val Gly Gly Thr Leu Tyr Val Val Ala Thr
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Pro Ile Gly Asn Leu Ala Asp Ile Thr Leu Arg Ala Leu Ala Val Leu
 35 40 45

Gln Lys Ala Asp Ile Ile Cys Ala Glu Asp Thr Arg Val Thr Ala Gln
 50 55 60

Leu Leu Ser Ala Tyr Gly Ile Gln Gly Arg Leu Val Ser Val Arg Glu
 65 70 75 80

His Asn Glu Arg Gln Met Ala Asp Lys Val Ile Gly Phe Leu Ser Asp
 85 90 95

Gly Leu Val Val Ala Gln Val Ser Asp Ala Gly Thr Pro Ala Val Cys

100

105

110

Asp Pro Gly Ala Lys Leu Ala Arg Arg Val Arg Glu Ala Gly Phe Lys
 115 120 125

Val Val Pro Val Val Gly Ala Ser Ala Val Met Ala Ala Leu Ser Val
 130 135 140

Ala Gly Val Ala Glu Ser Asp Phe Tyr Phe Asn Gly Phe Val Pro Pro
 145 150 155 160

Lys Ser Gly Glu Arg Arg Lys Leu Phe Ala Lys Trp Val Arg Ala Ala
 165 170 175

Phe Pro Val Val Met Phe Glu Thr Pro His Arg Ile Gly Ala Thr Leu
 180 185 190

Ala Asp Met Ala Glu Leu Phe Pro Glu Arg Arg Leu Met Leu Ala Arg
 195 200 205

Glu Ile Thr Lys Thr Phe Glu Thr Phe Leu Ser Gly Thr Val Gly Glu
 210 215 220

Ile Gln Thr Ala Leu Ala Ala Asp Gly Asn Gln Ser Arg Gly Glu Met
 225 230 235 240

Val Leu Val Leu Tyr Pro Ala Gln Asp Glu Lys His Glu Gly Leu Ser
 245 250 255

Glu Ser Ala Gln Asn Ala Met Lys Ile Leu Ala Ala Glu Leu Pro Thr
 260 265 270

Lys Gln Ala Ala Glu Leu Ala Ala Lys Ile Thr Gly Glu Gly Lys Lys
 275 280 285

Ala Leu Tyr Asp Leu Ala Leu Ser Trp Lys Asn Lys
 290 295 300

<210> 645
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 aaggcggaca tcatttgtgc cgaagacacg cgcgttactg cgcagctttt gagcgcgtac 180
 ggcattcagg gcaggttggt cagtgtgcgc gaacacaacg agcggcagat ggcggacaag 240
 gtaattcggtt tcctttcaga cggcctggtt gtggcgaggt tttccgatgc gggtagcccg 300
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 gcggcggacg gcaaccaatc gcgcggcgag atggtgttgg tgctttatcc ggcgcaggat 720

 gaaaaacacg aaggcttgtc cgagtctgcg caaaatgcga tgaaaatcct tgccggccgag 780
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 35 40 45
 Asp Thr Arg Val Thr Ala Gln Leu Leu Ser Ala Tyr Gly Ile Gln Gly
 50 55 60
 Arg Leu Val Ser Val Arg Glu His Asn Glu Arg Gln Met Ala Asp Lys
 65 70 75 80
 Val Ile Gly Phe Leu Ser Asp Gly Leu Val Val Ala Gln Val Ser Asp
 85 90 95
 Ala Gly Thr Pro Ala Val Cys Asp Pro Gly Ala Lys Leu Ala Arg Arg
 100 105 110

Val Arg Glu Ala Gly Phe Lys Val Val Pro Val Val Gly Ala Ser Ala
115 120 125

Val Met Ala Ala Leu Ser Val Ala Gly Val Ala Glu Ser Asp Phe Tyr
130 135 140

Phe Asn Gly Phe Val Pro Pro Lys Ser Gly Glu Arg Arg Lys Leu Phe
145 150 155 160

Ala Lys Trp Val Arg Ala Ala Phe Pro Val Val Met Phe Glu Thr Pro
165 170 175

His Arg Ile Gly Ala Thr Leu Ala Asp Met Ala Glu Leu Phe Pro Glu
180 185 190

Arg Arg Leu Met Leu Ala Arg Glu Ile Thr Lys Thr Phe Glu Thr Phe
195 200 205

Leu Ser Gly Thr Val Gly Glu Ile Gln Thr Ala Leu Ala Ala Asp Gly
210 215 220

Asn Gln Ser Arg Gly Glu Met Val Leu Val Leu Tyr Pro Ala Gln Asp
225 230 235 240

Glu Lys His Glu Gly Leu Ser Glu Ser Ala Gln Asn Ala Met Lys Ile

245

250

255

Leu Ala Ala Glu Leu Pro Thr Lys Gln Ala Ala Glu Leu Ala Ala Lys
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Ile Thr Gly Glu Gly Lys Lys Ala Leu Tyr Asp Leu Ala Leu Ser Trp
275 280 285

Lys Asn Lys
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<210> 647
<211> 2938
<212> DNA
<213> Neisseria meningitidis

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<223> N= Unknown

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gggcgggaca cacttatctt gccatcaact accaatacta tcgcgacttt gccgaaaata 180
aaggcaagtt tgcagtcggg gcgaaagata ttgaggttta caacaaaaaa ggggagttgg 240
tcggcaaata aatgacaaaa gccccgatga ttgatttttc tgtggtgtcg cgtaacggcg 300
tggcggcatt ggtgggcgta tcaatatatt gtgagcgtgg cacataacgg cggctataac 360
aacgttgatt ttggtgcgga aggaakaata tcccgatcaa cawcgwttta cttataaaat 420

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ggatgggchg	aaatatatcg	atcaaaataa	ttaccctgac	cgtgttcgta	ttggggcagg	600
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gataacttacc	agcaacatca	atcaaggtgc	tggaggatta	tatttccaag	gagattttac	1140
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taccgttact	tggaaagtaa	acggcggtggc	aaacgaccgc	ctgtccaaaa	tcggcaaagg	1260
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ccgaacacgc	gtcaataaccg	ccgtattggc	tcaggatttc	ggcaaaaccc	gcagtgcgga	2820
atggggcgta	aacgccgaaa	tcaaagggtt	cacgctgtcc	ctccacgctg	ccgcgcgcaa	2880
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<210> 648
 <211> 979
 <212> PRT
 <213> *Neisseria meningitidis*

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 <223> Xaa= any amino acid

<220>
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<223> Xaa= any amino acid

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<223> Xaa= any amino acid

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<223> Xaa= any amino acid

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<223> Xaa= any amino acid

<220>
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<223> Xaa= any amino acid

<220>
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<222> (830)..(830)
<223> Xaa= any amino acid

<220>
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<222> (832)..(832)
<223> Xaa= any amino acid

<400> 648
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Ser Phe Gly Ile Leu Pro Gln Ala Trp Ala Gly His Thr Tyr Phe Gly	35	40	45
Ile Asn Tyr Gln Tyr Tyr Arg Asp Phe Ala Glu Asn Lys Gly Lys Phe	50	55	60
Ala Val Gly Ala Lys Asp Ile Glu Val Tyr Asn Lys Lys Gly Glu Leu	65	70	75
Val Gly Lys Ser Met Thr Lys Ala Pro Met Ile Asp Phe Ser Val Val	85	90	95
Ser Arg Asn Gly Val Ala Ala Leu Val Gly Val Gln Tyr Ile Val Ser	100	105	110
Val Ala His Asn Gly Gly Tyr Asn Asn Val Asp Phe Gly Ala Glu Gly	115	120	125
Xaa Asn Ile Xaa Asp Gln Xaa Arg Xaa Thr Tyr Lys Ile Val Lys Arg	130	135	140
Asn Asn Tyr Lys Ala Gly Thr Lys Gly His Pro Tyr Gly Gly Asp Tyr	145	150	155
His Met Pro Arg Leu His Lys Xaa Val Thr Asp Ala Glu Pro Val Glu	165	170	175
Met Thr Ser Tyr Met Asp Gly Arg Lys Tyr Ile Asp Gln Asn Asn Tyr	180	185	190
Pro Asp Arg Val Arg Ile Gly Ala Gly Arg Gln Tyr Trp Arg Ser Asp	195	200	205
Glu Asp Glu Pro Asn Asn Arg Glu Ser Ser Tyr His Ile Ala Ser Gly	210	215	220
Ser Pro Met Phe Ile Tyr Asp Ala Gln Lys Gln Lys Trp Leu Ile Asn	225	230	235
Gly Val Leu Gln Thr Gly Asn Pro Tyr Ile Gly Lys Ser Asn Gly Phe	245	250	255
Gln Leu Val Arg Lys Asp Trp Phe Tyr Asp Glu Ile Phe Ala Gly Asp	260	265	270
Thr His Ser Val Phe Tyr Glu Pro Arg Gln Asn Gly Lys Tyr Ser Phe	275	280	285
Asn Asp Asp Asn Asn Gly Thr Gly Lys Ile Asn Ala Lys His Glu His	290	295	300

Asn Ser Leu Pro Asn Arg Leu Lys Thr Arg Thr Val Gln Leu Phe Asn
 305 310 315 320
 Val Ser Leu Ser Glu Thr Ala Arg Glu Pro Val Tyr His Ala Ala Gly
 325 330 335
 Gly Val Asn Ser Tyr Arg Pro Arg Leu Asn Asn Gly Glu Asn Ile Ser
 340 345 350
 Phe Ile Asp Glu Gly Lys Gly Glu Leu Ile Leu Thr Ser Asn Ile Asn
 355 360 365
 Gln Gly Ala Gly Gly Leu Tyr Phe Gln Gly Asp Phe Thr Val Ser Pro
 370 375 380
 Glu Asn Asn Glu Thr Trp Gln Gly Ala Gly Val His Ile Ser Glu Asp
 385 390 395 400
 Ser Thr Val Thr Trp Lys Val Asn Gly Val Ala Asn Asp Arg Leu Ser
 405 410 415
 Lys Ile Gly Lys Gly Thr Leu Asp Lys Val Thr Ala Ser Leu Thr Lys
 420 425 430
 Thr Asp Ile Ser Gly Asn Val Asp Leu Ala Asp His Ala His Leu Asn
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 450 455 460
 Thr Arg Tyr Thr Val Ser His Asn Ala Thr Gln Asn Gly Asn Xaa Ser
 465 470 475 480
 Leu Val Xaa Asn Ala Gln Ala Thr Phe Asn Gln Ala Thr Leu Asn Gly
 485 490 495
 Asn Thr Ser Ala Ser Gly Asn Ala Ser Phe Asn Leu Ser Asp His Ala
 500 505 510
 Val Gln Asn Gly Ser Leu Thr Leu Ser Gly Asn Ala Lys Ala Asn Val
 515 520 525
 Ser His Ser Ala Leu Asn Gly Asn Val Ser Leu Ala Asp Lys Ala Val
 530 535 540
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 545 550 555 560
 Asp Thr Ala Leu His Leu Lys Asp Ser Glu Trp Thr Leu Pro Ser Gly
 565 570 575
 Xaa Glu Leu Gly Asn Leu Asn Leu Asp Asn Ala Thr Ile Thr Leu Asn
 580 585 590
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Asn Gly Lys Leu Asn Gly Gln Gly Thr Phe Arg Phe Met Ser Glu Leu 645 650 655		
Phe Gly Tyr Arg Ser Asp Lys Leu Lys Leu Ala Glu Ser Ser Glu Gly 660 665 670		
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Glu Gln Leu Thr Val Val Glu Gly Lys Asp Asn Lys Pro Leu Ser Glu 690 695 700		
Asn Leu Asn Phe Thr Leu Gln Asn Glu His Val Asp Ala Gly Ala Trp 705 710 715 720		
Leu Asp Arg Val Phe Ala Glu Asp Arg Arg Asn Ala Val Trp Thr Ser 725 730 735		
Gly Ile Arg Asp Thr Lys His Tyr Arg Ser Gln Asp Phe Arg Ala Tyr 740 745 750		
Arg Gln Gln Thr Asp Leu Arg Gln Ile Gly Met Gln Lys Asn Leu Gly 755 760 765		
Ser Gly Arg Val Gly Ile Leu Phe Ser His Asn Arg Thr Glu Asn Thr 770 775 780		
Phe Asp Asp Gly Ile Gly Asn Ser Ala Arg Leu Ala His Gly Ala Val 785 790 795 800		
Phe Gly Gln Tyr Gly Ile Asp Arg Phe Tyr Ile Gly Ile Ser Ala Gly 805 810 815		
Ala Gly Phe Ser Ser Gly Ser Leu Ser Asp Gly Ile Gly Xaa Lys Xaa 820 825 830		
Arg Arg Arg Val Leu His Tyr Gly Ile Gln Ala Arg Tyr Arg Ala Gly 835 840 845		
Phe Gly Gly Phe Gly Ile Glu Pro His Ile Gly Ala Thr Arg Tyr Phe 850 855 860		
Val Gln Lys Ala Asp Tyr Arg Tyr Glu Asn Val Asn Ile Ala Thr Pro 865 870 875 880		
Gly Leu Ala Phe Asn Arg Tyr Arg Ala Gly Ile Lys Ala Asp Tyr Ser 885 890 895		

Phe Lys Pro Ala Gln His Ile Ser Ile Thr Pro Tyr Leu Ser Leu Ser
 900 905 910

Tyr Thr Asp Ala Ala Ser Gly Lys Val Arg Thr Arg Val Asn Thr Ala
 915 920 925

Val Leu Ala Gln Asp Phe Gly Lys Thr Arg Ser Ala Glu Trp Gly Val
 930 935 940

Asn Ala Glu Ile Lys Gly Phe Thr Leu Ser Leu His Ala Ala Ala Ala
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Tyr Arg Trp

<210> 649
 <211> 4374
 <212> DNA
 <213> Neisseria meningitidis

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ttcggcatcg aaccgcacat cggcgcaacg cgctatttcg tccaaaaagc ggattaccga 4080
tacgaaaacg tcaatatcgc caccocgggc cttgcattca accgctaccg cgcgggcatt 4140
aaggcagatt attcattcaa accggcgcaa cacatttcca tcacgcctta tttgagcctg 4200
tcctataccg atgccgcttc cggcaaagtc cgaacgcgcg tcaataccgc cgtattggcg 4260
caggatttcg gcaaaacccg cagtgcggaa tggggcgtaa acgccgaaat caaaggtttc 4320
acgctgtccc tccacgtcgc cgccgccaa gggccgcaat tggaagcgca gcacagcgcg 4380
ggcatcaaat taggctaccg ctggtaa 4407

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<210> 654
 <211> 1468
 <212> PRT
 <213> *Neisseria gonorrhoeae*

<400> 654
 Met Lys Thr Thr Asp Lys Arg Thr Thr Glu Thr His Arg Lys Ala Pro
 1 5 10 15
 Lys Thr Gly Arg Ile Arg Phe Ser Pro Ala Tyr Leu Ala Ile Cys Leu
 20 25 30
 Ser Phe Gly Ile Leu Pro Gln Ala Arg Ala Gly His Thr Tyr Phe Gly
 35 40 45
 Ile Asn Tyr Gln Tyr Tyr Arg Asp Phe Ala Glu Asn Lys Gly Lys Phe
 50 55 60
 Ala Val Gly Ala Lys Asp Ile Glu Val Tyr Asn Lys Lys Gly Glu Leu
 65 70 75 80
 Val Gly Lys Ser Met Thr Lys Ala Pro Met Ile Asp Phe Ser Val Val
 85 90 95
 Ser Arg Asn Gly Val Ala Ala Leu Ala Gly Asp Gln Tyr Ile Val Ser
 100 105 110
 Val Ala His Asn Gly Gly Tyr Asn Asn Val Asp Phe Gly Ala Glu Gly
 115 120 125
 Ser Asn Pro Asp Gln His Arg Phe Ser Tyr Gln Ile Val Lys Arg Asn

130		135		140
Asn Tyr Lys Ala Gly Thr Asn Gly His Pro Tyr Gly Gly Asp Tyr His				
145		150		155 160
Met Pro Arg Leu His Lys Phe Val Thr Asp Ala Glu Pro Val Glu Met				
	165		170	175
Thr Ser Tyr Met Asp Gly Trp Lys Tyr Ala Asp Leu Asn Lys Tyr Pro				
	180		185	190
Asp Arg Val Arg Ile Gly Ala Gly Arg Gln Tyr Trp Arg Ser Asp Glu				
	195		200	205
Asp Glu Pro Asn Asn Arg Glu Ser Ser Tyr His Ile Ala Ser Ala Tyr				
	210		215	220
Ser Trp Leu Val Gly Gly Asn Thr Phe Ala Gln Asn Gly Ser Gly Gly				
225		230		235 240
Gly Thr Val Asn Leu Gly Ser Glu Lys Ile Lys His Ser Pro Tyr Gly				
	245		250	255
Phe Leu Pro Thr Gly Gly Ser Phe Gly Asp Ser Gly Ser Pro Met Phe				
	260		265	270
Ile Tyr Asp Ala Gln Lys Gln Lys Trp Leu Ile Asn Gly Val Leu Gln				
	275		280	285
Thr Gly Asn Pro Tyr Ile Gly Lys Ser Asn Gly Phe Gln Leu Val Arg				
	290		295	300
Lys Asp Trp Phe Tyr Asp Glu Ile Phe Ala Gly Asp Thr His Ser Val				
305		310		315 320
Phe Tyr Glu Pro His Gln Asn Gly Lys Tyr Phe Phe Asn Asp Asn Asn				
	325		330	335
Asn Gly Ala Gly Lys Ile Asp Ala Lys His Lys His Tyr Ser Leu Pro				
	340		345	350
Tyr Arg Leu Lys Thr Arg Thr Val Gln Leu Phe Asn Val Ser Leu Ser				
	355		360	365
Glu Thr Ala Arg Glu Pro Val Tyr His Ala Ala Gly Gly Val Asn Ser				
	370		375	380
Tyr Arg Pro Arg Leu Asn Asn Gly Glu Asn Ile Ser Phe Ile Asp Lys				
385		390		395 400
Gly Lys Gly Glu Leu Ile Leu Thr Ser Asn Ile Asn Gln Gly Ala Gly				
	405		410	415
Gly Leu Tyr Phe Glu Gly Asn Phe Thr Val Ser Pro Lys Asn Asn Glu				
	420		425	430

Thr Trp Gln Gly Ala Gly Val His Ile Ser Asp Gly Ser Thr Val Thr
 435 440 445
 Trp Lys Val Asn Gly Val Ala Asn Asp Arg Leu Ser Lys Ile Gly Lys
 450 455 460
 Gly Thr Leu Leu Val Gln Ala Lys Gly Glu Asn Gln Gly Ser Val Ser
 465 470 475 480
 Val Gly Asp Gly Lys Val Ile Leu Asp Gln Gln Ala Asp Asp Gln Gly
 485 490 495
 Lys Lys Gln Ala Phe Ser Glu Ile Gly Leu Val Ser Gly Arg Gly Thr
 500 505 510
 Val Gln Leu Asn Ala Asp Asn Gln Phe Asn Pro Asp Lys Leu Tyr Phe
 515 520 525
 Gly Phe Arg Gly Gly Arg Leu Asp Leu Asn Gly His Ser Leu Ser Phe
 530 535 540
 His Arg Ile Gln Asn Thr Asp Glu Gly Ala Met Ile Val Asn His Asn
 545 550 555 560
 Gln Asp Lys Glu Ser Thr Val Thr Ile Thr Gly Asn Lys Asp Ile Thr
 565 570 575
 Thr Thr Gly Asn Asn Asn Asn Leu Asp Ser Lys Lys Glu Ile Ala Tyr
 580 585 590
 Asn Gly Trp Phe Gly Glu Lys Asp Ala Thr Lys Thr Asn Gly Gly Leu
 595 600 605
 Asn Leu Asn Tyr Pro Pro Glu Glu Ala Asp Arg Thr Leu Leu Leu Ser
 610 615 620
 Gly Gly Thr Asn Leu Asn Gly Asn Ile Thr Gln Thr Asn Gly Lys Leu
 625 630 635 640
 Phe Phe Ser Gly Arg Pro Thr Pro His Ala Tyr Asn His Leu Gly Ser
 645 650 655
 Gly Trp Ser Lys Met Glu Gly Ile Pro Gln Gly Glu Ile Val Trp Asp
 660 665 670
 Asn Asp Trp Ile Asp Arg Thr Phe Lys Ala Glu Asn Phe His Ile Gln
 675 680 685
 Gly Gly Gln Ala Val Val Ser Arg Asn Val Ala Lys Val Glu Gly Asp
 690 695 700
 Trp His Leu Ser Asn His Ala Gln Ala Val Phe Gly Val Ala Pro His
 705 710 715 720
 Gln Ser His Thr Ile Cys Thr Arg Ser Asp Trp Thr Gly Leu Thr Ser
 725 730 735

Cys Thr Glu Lys Thr Ile Thr Asp Asp Lys Val Ile Ala Ser Leu Ser
 740 745 750
 Lys Thr Asp Val Arg Gly Asn Val Ser Leu Ala Asp His Ala His Leu
 755 760 765
 Asn Leu Thr Gly Leu Ala Thr Phe Asn Gly Asn Leu Val Gln Ala Glu
 770 775 780
 Thr Arg Thr Ile Arg Leu Arg Ala Asn Ala Thr Gln Asn Gly Asn Leu
 785 790 795 800
 Ser Leu Val Gly Asn Ala Gln Ala Thr Phe Asn Gln Ala Thr Leu Asn
 805 810 815
 Gly Asn Thr Ser Ala Ser Asp Asn Ala Ser Phe Asn Leu Ser Asn Asn
 820 825 830
 Ala Val Gln Asn Gly Ser Leu Thr Leu Ser Asp Asn Ala Lys Ala Asn
 835 840 845
 Val Ser His Ser Ala Leu Asn Gly Asn Val Ser Leu Ala Asp Lys Ala
 850 855 860
 Val Phe His Phe Glu Asn Ser Arg Phe Thr Gly Lys Ile Ser Gly Gly
 865 870 875 880
 Lys Asp Thr Ala Leu His Leu Lys Asp Ser Glu Trp Thr Leu Pro Ser
 885 890 895
 Gly Thr Glu Leu Gly Asn Leu Asn Leu Asp Asn Ala Thr Ile Thr Leu
 900 905 910
 Asn Ser Ala Tyr Arg His Asp Ala Ala Gly Ala Gln Thr Gly Ser Ala
 915 920 925
 Ala Asp Ala Pro Arg Arg Arg Ser Arg Arg Ser Leu Leu Ser Val Thr
 930 935 940
 Pro Pro Thr Ser Ala Glu Ser Arg Phe Asn Thr Leu Thr Val Asn Gly
 945 950 955 960
 Lys Leu Asn Gly Gln Gly Thr Phe Arg Phe Met Ser Glu Leu Phe Gly
 965 970 975
 Tyr Arg Ser Gly Lys Leu Lys Leu Ala Glu Ser Ser Glu Gly Thr Tyr
 980 985 990
 Thr Leu Ala Val Asn Asn Thr Gly Asn Glu Pro Val Ser Leu Glu Gln
 995 1000 1005
 Leu Thr Val Val Glu Gly Lys Asp Asn Thr Pro Leu Ser Glu Asn
 1010 1015 1020
 Leu Asn Phe Thr Leu Gln Asn Glu His Val Asp Ala Gly Ala Trp

1025	1030	1035
Arg Tyr Gln Leu Ile Arg Lys Asp Gly Glu Phe Arg Leu His Asn 1040 1045 1050		
Pro Val Lys Glu Gln Glu Leu Ser Asp Lys Leu Gly Lys Ala Gly 1055 1060 1065		
Glu Thr Glu Ala Ala Leu Thr Ala Lys Gln Ala Gln Leu Ala Ala 1070 1075 1080		
Lys Gln Gln Ala Glu Lys Asp Asn Ala Gln Ser Leu Asp Ala Leu 1085 1090 1095		
Ile Ala Ala Gly Arg Asn Ala Thr Glu Lys Ala Glu Ser Val Ala 1100 1105 1110		
Glu Pro Ala Arg Gln Ala Gly Gly Glu Asn Ala Gly Ile Met Gln 1115 1120 1125		
Ala Glu Glu Glu Lys Lys Arg Val Gln Ala Asp Lys Asp Thr Ala 1130 1135 1140		
Leu Ala Lys Gln Arg Glu Ala Glu Thr Arg Pro Ala Thr Thr Ala 1145 1150 1155		
Phe Pro Arg Ala Arg Arg Ala Arg Arg Asp Leu Pro Gln Pro Gln 1160 1165 1170		
Pro Gln Pro Gln Pro Gln Pro Gln Arg Asp Leu Ile Ser Arg Tyr 1175 1180 1185		
Ala Asn Ser Gly Leu Ser Glu Phe Ser Ala Thr Leu Asn Ser Val 1190 1195 1200		
Phe Ala Val Gln Asp Glu Leu Asp Arg Val Phe Ala Glu Asp Arg 1205 1210 1215		
Arg Asn Ala Val Trp Thr Ser Gly Ile Arg Asp Thr Lys His Tyr 1220 1225 1230		
Arg Ser Gln Asp Phe Arg Ala Tyr Arg Gln Gln Thr Asp Leu Arg 1235 1240 1245		
Gln Ile Gly Met Gln Lys Asn Leu Gly Ser Gly Arg Val Gly Ile 1250 1255 1260		
Leu Phe Ser His Asn Arg Thr Gly Asn Thr Phe Asp Asp Gly Ile 1265 1270 1275		
Gly Asn Ser Ala Arg Leu Ala His Gly Ala Val Phe Gly Gln Tyr 1280 1285 1290		
Gly Ile Gly Arg Phe Asp Ile Gly Ile Ser Ala Gly Ala Gly Phe 1295 1300 1305		

Ser Ser Gly Ser Leu Ser Asp Gly Ile Arg Gly Lys Ile Arg Arg
 1310 1315 1320
 Arg Val Leu His Tyr Gly Ile Gln Ala Arg Tyr Arg Ala Gly Phe
 1325 1330 1335
 Gly Gly Phe Gly Ile Glu Pro His Ile Gly Ala Thr Arg Tyr Phe
 1340 1345 1350
 Val Gln Lys Ala Asp Tyr Arg Tyr Glu Asn Val Asn Ile Ala Thr
 1355 1360 1365
 Pro Gly Leu Ala Phe Asn Arg Tyr Arg Ala Gly Ile Lys Ala Asp
 1370 1375 1380
 Tyr Ser Phe Lys Pro Ala Gln His Ile Ser Ile Thr Pro Tyr Leu
 1385 1390 1395
 Ser Leu Ser Tyr Thr Asp Ala Ala Ser Gly Lys Val Arg Thr Arg
 1400 1405 1410
 Val Asn Thr Ala Val Leu Ala Gln Asp Phe Gly Lys Thr Arg Ser
 1415 1420 1425
 Ala Glu Trp Gly Val Asn Ala Glu Ile Lys Gly Phe Thr Leu Ser
 1430 1435 1440
 Leu His Ala Ala Ala Ala Lys Gly Pro Gln Leu Glu Ala Gln His
 1445 1450 1455
 Ser Ala Gly Ile Lys Leu Gly Tyr Arg Trp
 1460 1465

<210> 655
 <211> 422
 <212> DNA
 <213> Neisseria meningitidis

<400> 655
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 cgaccgcgca aaaattgaac ctgtttaagg cgggtgcggc aaccattttg ttttatgaag 120
 atcaaaatgt cgtcaaagggt ttgcaggagc agttccctgc ttatgccgct aacttccccg 180
 tttgggcgga tcaggcaaac gcgatggtgc agtatgccgt ttggacgaca cttgccgcgg 240
 tcggcgtagg tgcaaacctg caacattaca atcccttgcc cgatgcggcg attgccaaag 300
 cgtggaatat ccccgaaaac tggttgttgc gcgcacaaat ggttatcggc ggtattgaag 360
 gggcggcagg tgaaaagacc tttgaaccgc ttgcagaacg tttgaaagtg ttcgggcgc 420
 aa 422

<210> 656
 <211> 140
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (8)..(8)

<223> Xaa= any amino acid

<400> 656

Lys Val Trp Gln Phe Val Glu Xaa Pro Leu Arg Ala Val Val Pro Ala
1 5 10 15
Asp Ser Phe Glu Pro Thr Ala Gln Lys Leu Asn Leu Phe Lys Ala Gly
20 25 30
Ala Ala Thr Ile Leu Phe Tyr Glu Asp Gln Asn Val Val Lys Gly Leu
35 40 45
Gln Glu Gln Phe Pro Ala Tyr Ala Ala Asn Phe Pro Val Trp Ala Asp
50 55 60
Gln Ala Asn Ala Met Val Gln Tyr Ala Val Trp Thr Thr Leu Ala Ala
65 70 75 80
Val Gly Val Gly Ala Asn Leu Gln His Tyr Asn Pro Leu Pro Asp Ala
85 90 95
Ala Ile Ala Lys Ala Trp Asn Ile Pro Glu Asn Trp Leu Leu Arg Ala
100 105 110
Gln Met Val Ile Gly Gly Ile Glu Gly Ala Ala Gly Glu Lys Thr Phe
115 120 125
Glu Pro Val Ala Glu Arg Leu Lys Val Phe Gly Ala
130 135 140

<210> 657

<211> 396

<212> DNA

<213> Neisseria meningitidis

<400> 657

ctgcggtgccg tcgtgcctgc cgacagtttt gaaccgaccg cgcaaaaatt gaacctgttt 60
aaggcgggtg cggcaaccat tttgttttat gaagatcaaa atgtcgtcaa aggtttgcag 120
gagcagttcc ctgcttatgc cgctaacttc cccgtttggg cggatcaggc aaacgcgatg 180
gtgcagtatg ccgtttggac gacacttgcc gcggtcggcg taggtgcaaa cctgcaacat 240
tacaatccct tgcccgatgc ggcgattgcc aaagcgtgga atatccccga aaactggttg 300
ttgcgcgcac aaatggttat cggcgggtatt gaaggggagg caggtgaaaa gacctttgaa 360
cccgttgacg aacgtttgaa agtggttcggc gcataa 396

<210> 658

<211> 131

<212> PRT

<213> Neisseria meningitidis

<400> 658

Leu Arg Ala Val Val Pro Ala Asp Ser Phe Glu Pro Thr Ala Gln Lys
1 5 10 15
Leu Asn Leu Phe Lys Ala Gly Ala Ala Thr Ile Leu Phe Tyr Glu Asp
20 25 30

Gln Asn Val Val Lys Gly Leu Gln Glu Gln Phe Pro Ala Tyr Ala Ala
 35 40 45

Asn Phe Pro Val Trp Ala Asp Gln Ala Asn Ala Met Val Gln Tyr Ala
 50 55 60

Val Trp Thr Thr Leu Ala Ala Val Gly Val Gly Ala Asn Leu Gln His
 65 70 75 80

Tyr Asn Pro Leu Pro Asp Ala Ala Ile Ala Lys Ala Trp Asn Ile Pro
 85 90 95

Glu Asn Trp Leu Leu Arg Ala Gln Met Val Ile Gly Gly Ile Glu Gly
 100 105 110

Ala Ala Gly Glu Lys Thr Phe Glu Pro Val Ala Glu Arg Leu Lys Val
 115 120 125

Phe Gly Ala
 130

<210> 659
 <211> 606
 <212> DNA
 <213> Neisseria meningitidis

<400> 659
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 aaaaatctgc ccgtcggcaa agatgaaatc gtccaaatcg tcgaacacgc cgttttgcac 120
 acaccttctt cggtcaattc ccaatctgcc cgtgtggtcg tgctgtttgg cgaagagcat 180
 gataaggtgt ggcaatttgt cgaagacgcg ctgcgtgccg tcgtgcctgc cgacagtttt 240
 gaaccgaccg cgcaaaaatt gaacctgttt aaggcgggtg cggcaactat tttgttttat 300
 gaagatcaaa atgtcgtcaa aggtttgcag gagcagttcc ctgcttatgc cgccaacttt 360
 cccgtttggg cggaccaggc gaacgcgatg gtgcagtatg ccgtttggac gacacttgcc 420
 gcggtcggcg taggtgcaaa cctgcaacat tacaatccct tgcccgatgc ggcgattgcc 480
 aaagcgtgga atatccccga aaactgggtg ttgcgcgcac aaatgggttat cggcgggtatt 540
 gaagggggcgg caggtgaaaa gacctttgaa ccagttgcag aacgtttgaa agtggttcggc 600
 gcataa 606

<210> 660
 <211> 201
 <212> PRT
 <213> Neisseria meningitidis

<400> 660
 Met Thr Arg Gln Ser Leu Gln Gln Ala Ala Glu Ser Arg Arg Ser Ile
 1 5 10 15

Tyr Ser Leu Asn Lys Asn Leu Pro Val Gly Lys Asp Glu Ile Val Gln
 20 25 30

Ile Val Glu His Ala Val Leu His Thr Pro Ser Ser Phe Asn Ser Gln
 35 40 45

Ser Ala Arg Val Val Val Leu Phe Gly Glu Glu His Asp Lys Val Trp
50 55 60

Gln Phe Val Glu Asp Ala Leu Arg Ala Val Val Pro Ala Asp Ser Phe
65 70 75 80

Glu Pro Thr Ala Gln Lys Leu Asn Leu Phe Lys Ala Gly Ala Ala Thr
85 90 95

Ile Leu Phe Tyr Glu Asp Gln Asn Val Val Lys Gly Leu Gln Glu Gln
100 105 110

Phe Pro Ala Tyr Ala Ala Asn Phe Pro Val Trp Ala Asp Gln Ala Asn
115 120 125

Ala Met Val Gln Tyr Ala Val Trp Thr Thr Leu Ala Ala Val Gly Val
130 135 140

Gly Ala Asn Leu Gln His Tyr Asn Pro Leu Pro Asp Ala Ala Ile Ala
145 150 155 160

Lys Ala Trp Asn Ile Pro Glu Asn Trp Leu Leu Arg Ala Gln Met Val
165 170 175

Ile Gly Gly Ile Glu Gly Ala Ala Gly Glu Lys Thr Phe Glu Pro Val
180 185 190

Ala Glu Arg Leu Lys Val Phe Gly Ala
195 200

<210> 661
<211> 525
<212> DNA
<213> Neisseria gonorrhoeae

<400> 661
atggccggtg cgtcaaagt cagcttgat atgtccaatc ctacggtgtt acgcatggga 60
ttacccttat atattgcgtc cctaagaagg ggcgcaatat ataagggtgtg gcaatttgtc 120
gaagacgcgc tgcgtgccgt cgtgcctgcc gacagttttg aaccgaccgc gcaaaaattg 180
aagctgttta aggcgggcgc ggcaaccatt ttgttttatg aagatcaaaa tgcgtcaaaa 240
ggtttgcagg agcagttccc tgcttatgcc gccaaactttc ccgtttgggc ggaccaggcg 300
aacgctatgg tacagtatgc cgtctggacg acacttgccg cggtcggtgc aggtgcaaatt 360
ctgcaacatt acaaccctt gcccgatgtg gcgattgcta aagcgtggaa tattcccgaa 420
aactggctgt tgcgcgcgca aatgggttatc ggtgggtattg aaggggcggc aggtgaaaaa 480
gtctttgaac ccgttgcgga acgtttgaaa gtgttcggcg cataa 525

<210> 662
<211> 174
<212> PRT
<213> Neisseria gonorrhoeae

<400> 662
Met Ala Val Ala Ser Asn Val Ser Leu Asp Met Ser Asn Pro Thr Val
1 5 10 15

Leu Arg Met Gly Leu Pro Leu Tyr Ile Ala Ser Leu Arg Arg Gly Ala

20 25 30
 Ile Tyr Lys Val Trp Gln Phe Val Glu Asp Ala Leu Arg Ala Val Val
 35 40 45
 Pro Ala Asp Ser Phe Glu Pro Thr Ala Gln Lys Leu Lys Leu Phe Lys
 50 55 60
 Ala Gly Ala Ala Thr Ile Leu Phe Tyr Glu Asp Gln Asn Val Val Lys
 65 70 75 80
 Gly Leu Gln Glu Gln Phe Pro Ala Tyr Ala Ala Asn Phe Pro Val Trp
 85 90 95
 Ala Asp Gln Ala Asn Ala Met Val Gln Tyr Ala Val Trp Thr Thr Leu
 100 105 110
 Ala Ala Val Gly Ala Gly Ala Asn Leu Gln His Tyr Asn Pro Leu Pro
 115 120 125
 Asp Val Ala Ile Ala Lys Ala Trp Asn Ile Pro Glu Asn Trp Leu Leu
 130 135 140
 Arg Ala Gln Met Val Ile Gly Gly Ile Glu Gly Ala Ala Gly Glu Lys
 145 150 155 160
 Val Phe Glu Pro Val Ala Glu Arg Leu Lys Val Phe Gly Ala
 165 170

<210> 663
 <211> 633
 <212> DNA
 <213> Neisseria meningitidis

<400> 663
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 cccgttgccg acgcgctggc cgatacgggt caatgccaac accgccgcct atgagcgcggt 120
 agaagtcgtg cgcggcgctgg cggggctgct ggacggcacg ggcgagcctt ccgccaccgt 180
 caatctggtg cgcaaacgcc tgaccgcgaa gccattgttt gaagtccgcg ccgaagcggg 240
 caaccgaaa catttcgggc tggacgcgga cgtatcgggc agcctgaaca ccgaagcrrc 300
 ctgcgcggcc gcctggtttc caccttcgga cgcggcgact cgtggcggcg gcgcgaacgc 360
 agccgskatg ccgaactcta cggcattttg gaatacgaca tcgcaccgca aaccgcggtc 420
 caccgargca tggactacca gcaggcgaaa gaaaccgcgc acgcgcgcgt cagctacgcc 480
 gtgtacgaca gccaagggtta tgccaccgcc ttcggccccg aagacaaccc cgccacaaat 540
 tgggcgaaca gccaccaccg tgcgctcaac ctgttcgcgc gcatcgaaca ccgcttcaac 600
 caagactgga aactcaaagc cgaatacgac tac 633

<210> 664
 <211> 211
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (99)..(100)

<223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (123)..(123)

<223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (143)..(143)

<223> Xaa= any amino acid

<400> 664

Gly Tyr Asn Tyr Leu Phe Ala Arg Gly Ser Arg Ile Ala Asn Tyr Gln
1 5 10 15

Ile Asn Gly Ile Pro Val Ala Asp Ala Leu Ala Asp Thr Gly Asn Ala
20 25 30

Asn Thr Ala Ala Tyr Glu Arg Val Glu Val Val Arg Gly Val Ala Gly
35 40 45

Leu Leu Asp Gly Thr Gly Glu Pro Ser Ala Thr Val Asn Leu Val Arg
50 55 60

Lys Arg Leu Thr Arg Lys Pro Leu Phe Glu Val Arg Ala Glu Ala Gly
65 70 75 80

Asn Arg Lys His Phe Gly Leu Asp Ala Asp Val Ser Gly Ser Leu Asn
85 90 95

Thr Glu Xaa Xaa Leu Arg Gly Arg Leu Val Ser Thr Phe Gly Arg Gly
100 105 110

Asp Ser Trp Arg Arg Arg Glu Arg Ser Arg Xaa Ala Glu Leu Tyr Gly
115 120 125

Ile Leu Glu Tyr Asp Ile Ala Pro Gln Thr Arg Val His Ala Xaa Met
130 135 140

Asp Tyr Gln Gln Ala Lys Glu Thr Ala Asp Ala Pro Leu Ser Tyr Ala
145 150 155 160

Val Tyr Asp Ser Gln Gly Tyr Ala Thr Ala Phe Gly Pro Lys Asp Asn
165 170 175

Pro Ala Thr Asn Trp Ala Asn Ser His His Arg Ala Leu Asn Leu Phe
180 185 190

Ala Gly Ile Glu His Arg Phe Asn Gln Asp Trp Lys Leu Lys Ala Glu
195 200 205

Tyr Asp Tyr
210

<210> 665
 <211> 2178
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 665
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 gatgtttctg tttcagacga ccccaaaccg caggaaagca ctgaattgcc gaccatcacc 120

gttaccgccg accgcaccgc gagttccaac gacggctaca ctgtttccgg cagcacacc 180
 ccgctcgggc tgcccatgac cctgcgcgaa atcccgcaga gcgtcagcgt catcacatcg 240
 caacaaatgc gcgacaaaaa catcaaaacg ctcgaccgcg ccctgttgca ggcgaccggc 300
 accagccgcc agatttacgg ctccgaccgc gggggctaca actacctgtt cgcgcgccgc 360
 agccgcacgc ccaactacca aatcaacggc atccccgttg ccgacgcgct ggccgatacg 420
 ggcaatgcc aacccgcgcg ctatgagcgc gtagaagtcg tgcgcgccgt ggccgggctg 480
 ctggacggca cgggcgagcc ttccgccacc gtcaatctgg tgcgcaaacg cctgaccgcg 540
 aagccattgt ttgaagtccg cgccgaagcg ggcaaccgca aacatttcgg gctggacgcg 600
 gacgtatcgg gcagcctgaa caccgaaggc acgctgcgcg gccgcctggg ttccaccttc 660
 ggagcggcg actcgtggcg gcggcgcgaa cgcagccgcg atgccgaact ctacggcatt 720
 ttggaatacg acatcgaccc gcaaaccgcg gtccacgcag gcatggacta ccagcaggcg 780
 aaagaaaccg ccgacgcgcc gctcagctac gccgtgtacg acagccaagg ttatgccacc 840
 gccttcgggc cgaaagacaa ccccgccaca aattgggcga acagccgcca ccgtgcgctc 900
 aacctgttcg ccggcatcga acaccgcttc aaccaagact ggaaactcaa agccgaatac 960
 gactacaccc gcagccgctt ccgccagccc tacggcgtag caggcgtgct ttccatcgac 1020
 cacaacaccg ccgccaccga cctgattccc gggtattggc acgccgaccc gcgcacccac 1080
 agcgcacgcg tgtcattgat cggcaaatat cgccgttcg gccgcgaaca cgatttaata 1140
 gcgggtatca acggttacaa atacgccagc aacaaatagc gcgaacgcag catcatcccc 1200
 aacgccattc ccaacgccta cgaattttcc cgcacgggtg cctaccgcga gcctgcatcg 1260
 tttgccc aaa ccatcccgca atacggcacc agggcgcaaa tcggcggtta tctcgccacc 1320
 cgtttcgcgc ccgccgacaa cctttcgtg attttggcg gacgatacac ccgttacgcg 1380
 accggcagct acgacagccg cacacaaggc atgacctatg tgcgcgcaa ccgtttcacc 1440
 ccctacacag gcatcgtgtt cgacctgacc ggcaacctgt ctctttacgg ctctgacagc 1500
 agcctgttcg tcccgcgaatc gcaaaaagac gaacacggca gctacctgaa acccgtaacc 1560
 ggcaacaatc tggaagccgg catcaaaggc gaatggcttg aaggccgtct gaacgcattc 1620
 gccgcctgt accgcgcccg taaaaaacac ctgcgcaccg cagcaggacg cgaccgcgac 1680
 ggcaacacct actaccgcgc cgccaaccaa gccaaaaccc acggctggga aatcgaagtc 1740
 ggcgccgcga tcacgcccga atggcagata caggcagggt acagccaaag caaaaccgcg 1800
 gaccaagacg gcagccgctt gaaccccgac agcgtaccgc aacgcagctt caaactcttc 1860
 actgcctacc actttgcccc cgaagccccc agcggctgga ccatcggcgc aggcgtgcgc 1920
 tggcagagcg aaaccacac cgacctgcc acgctccgca tccccaaacc cgccgcaaaa 1980
 gcccgcgccc ccgacaacag ccgccaaaaa gcctacgcgc tcgccgacat catggcgcg 2040
 taccgcttca atccgcgcgc cgaactgtcg ctgaacgtgg acaatctgtt caacaaacac 2100
 taccgcaccc agcccgaccg ccacagctac ggcgcactgc ggacagtga cgcggcggtt 2160
 acctatcggt ttaaataa 2178

<210> 666
 <211> 725
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 666
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 1 5 10 15
 Tyr Ala Gln Ala Asp Val Ser Val Ser Asp Asp Pro Lys Pro Gln Glu
 20 25 30

Ser Thr Glu Leu Pro Thr Ile Thr Val Thr Ala Asp Arg Thr Ala Ser
 35 40 45

Ser Asn Asp Gly Tyr Thr Val Ser Gly Thr His Thr Pro Leu Gly Leu
 50 55 60

Pro Met Thr Leu Arg Glu Ile Pro Gln Ser Val Ser Val Ile Thr Ser
 65 70 75 80

Gln Gln Met Arg Asp Gln Asn Ile Lys Thr Leu Asp Arg Ala Leu Leu
 85 90 95

Gln Ala Thr Gly Thr Ser Arg Gln Ile Tyr Gly Ser Asp Arg Ala Gly
 100 105 110

Tyr Asn Tyr Leu Phe Ala Arg Gly Ser Arg Ile Ala Asn Tyr Gln Ile
 115 120 125

Asn Gly Ile Pro Val Ala Asp Ala Leu Ala Asp Thr Gly Asn Ala Asn
 130 135 140

Thr Ala Ala Tyr Glu Arg Val Glu Val Val Arg Gly Val Ala Gly Leu
 145 150 155 160

Leu Asp Gly Thr Gly Glu Pro Ser Ala Thr Val Asn Leu Val Arg Lys
 165 170 175

Arg Leu Thr Arg Lys Pro Leu Phe Glu Val Arg Ala Glu Ala Gly Asn
 180 185 190

Arg Lys His Phe Gly Leu Asp Ala Asp Val Ser Gly Ser Leu Asn Thr
 195 200 205

Glu Gly Thr Leu Arg Gly Arg Leu Val Ser Thr Phe Gly Arg Gly Asp
 210 215 220

Ser Trp Arg Arg Arg Glu Arg Ser Arg Asp Ala Glu Leu Tyr Gly Ile
 225 230 235 240

Leu Glu Tyr Asp Ile Ala Pro Gln Thr Arg Val His Ala Gly Met Asp
 245 250 255

Tyr Gln Gln Ala Lys Glu Thr Ala Asp Ala Pro Leu Ser Tyr Ala Val
 260 265 270

Tyr Asp Ser Gln Gly Tyr Ala Thr Ala Phe Gly Pro Lys Asp Asn Pro
 275 280 285

Ala Thr Asn Trp Ala Asn Ser Arg His Arg Ala Leu Asn Leu Phe Ala
 290 295 300

Gly Ile Glu His Arg Phe Asn Gln Asp Trp Lys Leu Lys Ala Glu Tyr
 305 310 315 320

Asp Tyr Thr Arg Ser Arg Phe Arg Gln Pro Tyr Gly Val Ala Gly Val

	325		330		335
Leu Ser Ile Asp His Asn Thr Ala Ala Thr Asp Leu Ile Pro Gly Tyr	340		345		350
Trp His Ala Asp Pro Arg Thr His Ser Ala Ser Val Ser Leu Ile Gly	355		360		365
Lys Tyr Arg Leu Phe Gly Arg Glu His Asp Leu Ile Ala Gly Ile Asn	370		375		380
Gly Tyr Lys Tyr Ala Ser Asn Lys Tyr Gly Glu Arg Ser Ile Ile Pro	385		390		395
Asn Ala Ile Pro Asn Ala Tyr Glu Phe Ser Arg Thr Gly Ala Tyr Pro	405		410		415
Gln Pro Ala Ser Phe Ala Gln Thr Ile Pro Gln Tyr Gly Thr Arg Arg	420		425		430
Gln Ile Gly Gly Tyr Leu Ala Thr Arg Phe Arg Ala Ala Asp Asn Leu	435		440		445
Ser Leu Ile Leu Gly Gly Arg Tyr Thr Arg Tyr Arg Thr Gly Ser Tyr	450		455		460
Asp Ser Arg Thr Gln Gly Met Thr Tyr Val Ser Ala Asn Arg Phe Thr	465		470		475
Pro Tyr Thr Gly Ile Val Phe Asp Leu Thr Gly Asn Leu Ser Leu Tyr	485		490		495
Gly Ser Tyr Ser Ser Leu Phe Val Pro Gln Ser Gln Lys Asp Glu His	500		505		510
Gly Ser Tyr Leu Lys Pro Val Thr Gly Asn Asn Leu Glu Ala Gly Ile	515		520		525
Lys Gly Glu Trp Leu Glu Gly Arg Leu Asn Ala Ser Ala Ala Val Tyr	530		535		540
Arg Ala Arg Lys Asn Asn Leu Ala Thr Ala Ala Gly Arg Asp Pro Ser	545		550		555
Gly Asn Thr Tyr Tyr Arg Ala Ala Asn Gln Ala Lys Thr His Gly Trp	565		570		575
Glu Ile Glu Val Gly Gly Arg Ile Thr Pro Glu Trp Gln Ile Gln Ala	580		585		590
Gly Tyr Ser Gln Ser Lys Thr Arg Asp Gln Asp Gly Ser Arg Leu Asn	595		600		605
Pro Asp Ser Val Pro Glu Arg Ser Phe Lys Leu Phe Thr Ala Tyr His	610		615		620

Phe Ala Pro Glu Ala Pro Ser Gly Trp Thr Ile Gly Ala Gly Val Arg
625 630 635 640

Trp Gln Ser Glu Thr His Thr Asp Pro Ala Thr Leu Arg Ile Pro Asn
645 650 655

Pro Ala Ala Lys Ala Arg Ala Ala Asp Asn Ser Arg Gln Lys Ala Tyr
660 665 670

Ala Val Ala Asp Ile Met Ala Arg Tyr Arg Phe Asn Pro Arg Ala Glu
675 680 685

Leu Ser Leu Asn Val Asp Asn Leu Phe Asn Lys His Tyr Arg Thr Gln
690 695 700

Pro Asp Arg His Ser Tyr Gly Ala Leu Arg Thr Val Asn Ala Ala Phe
705 710 715 720

Thr Tyr Arg Phe Lys
725

<210> 667
<211> 2178
<212> DNA
<213> Neisseria meningitidis

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gatgtttctg tttcagacga cccaaaaccg caggaaagca ctgaattgcc gaccatcacc 120
gttaccgccg accgcaccgc gagttccaac gacggctaca ctgtttccgg caccacacc 180
ccgctcgggc tgcccatgac cctgcgcgaa atccgcaga gcgtcagcgt catcacatcg 240
caacaaatgc ggcacaaaaa catcaaagcg ctgcaccgcg ccctgttgca ggcgaccggc 300
accagccgcc agatttacgg ctccgaccgc gcgggctaca actacctgtt cgcgcgcggc 360
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ggcaatgcc aacccgcgcg ctatgagcgc gtagaagtcg tgccgcggcg ggcggggctg 480
ctggacggca cgggcgagcc ttccgccacc gtcaatctgg tgcgcaaacg cccgaccgcg 540
aagccattgt ttgaagtcgg cgccgaagcg ggcaaccgca aacatttcgg gctgggcgcg 600
gacgtatcgg gcagcctgaa tgccgaaggc acgctgcgcg gccgcctggt ttccaccttc 660
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gccttcggcc cgaaagacaa ccccgccaca aattgggcga acagccgcca ccgtgcgctc 900
aacctgttcg ccggcatcga acaccgcttc aaccaagact ggaaactcaa agccgaatac 960
gactacacc gcagccgctt ccgccagccc tacggcgtag caggcgtgct ttccatcgac 1020
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agcgccagcg tgtcattaat cggcaaatac cgctgttcg gccgcgaaca cgatttaac 1140
gcgggtatca acggttacaa atacgccagc aacaaatacg gcgaacgcag catcatcccc 1200
aacgccattc ccaacgccta cgaattttcc cgcacgggtg cctaccgcga gectgcacg 1260
tttgcccaaa ccatcccgca atacggcacc aggcggcaaa tcggcggtta tctcgccacc 1320
cgtttcgcgc ccgccgacaa cctttcgtcg atactcggcg gcagatacag ccgttacgcg 1380
accggcagct acgacagccg cacacaaggc atgacctatg tgcgcgcaa ccgtttcacc 1440
ccctacacag gcatcgtgtt cgacctgacc ggcaacctgt cgctttacgg ctctgacagc 1500
agcctgttcg tcccgaatc gcaaaaagac gaacacggca gctacctgaa acccgtaacc 1560
ggcaacaatc tggaagccgg catcaaaggc gaatggcttg aaggccgtct gaacgcatcc 1620
gccgccgtgt accgcgcccg taaaaaacac ctgcgcaccg cagcaggacg cgacccgagc 1680
ggcaacacct actaccgcgc cgccaaccaa gccaaaaccc acggctggga aatcgaagtc 1740

ggcggccgca	tcacgcccga	atggcagata	caggcaggtt	acagccaaag	caaaacccgc	1800
gaccaagacg	gcagccgcct	gaaccccgac	agcgtaccgc	aacgcagctt	caaactcttc	1860
actgcctacc	actttgcccc	cgaagccccc	agcggctgga	ccatcggcgc	aggcgtgcgc	1920
tggcagagcg	aaacccacac	cgaccctgcc	acgctccgca	tccccaaccc	cgccgcaaaa	1980
gcccgcgccc	ccgacaacag	ccgccaacaa	gcctacgcgc	tcgcccacat	catggcgcgt	2040
taccgcttca	atccgcgcgc	cgaactgtcg	ctgaacgtgg	acaatctgtt	caacaaacac	2100
taccgcaccc	agcccgaccg	ccacagctac	ggcgcactgc	ggacagtga	cgccgctgtt	2160
acctatcggg	ttaaataa					2178

<210> 668
 <211> 725
 <212> PRT

<213> *Neisseria meningitidis*

<400> 668

Met	Thr	Arg	Phe	Lys	Tyr	Ser	Leu	Leu	Phe	Ala	Ala	Leu	Leu	Pro	Val	1	5	10	15
Tyr	Ala	Gln	Ala	Asp	Val	Ser	Val	Ser	Asp	Asp	Pro	Lys	Pro	Gln	Glu	20	25	30	
Ser	Thr	Glu	Leu	Pro	Thr	Ile	Thr	Val	Thr	Ala	Asp	Arg	Thr	Ala	Ser	35	40	45	
Ser	Asn	Asp	Gly	Tyr	Thr	Val	Ser	Gly	Thr	His	Thr	Pro	Leu	Gly	Leu	50	55	60	
Pro	Met	Thr	Leu	Arg	Glu	Ile	Pro	Gln	Ser	Val	Ser	Val	Ile	Thr	Ser	65	70	75	80
Gln	Gln	Met	Arg	Asp	Gln	Asn	Ile	Lys	Ala	Leu	Asp	Arg	Ala	Leu	Leu	85	90	95	
Gln	Ala	Thr	Gly	Thr	Ser	Arg	Gln	Ile	Tyr	Gly	Ser	Asp	Arg	Ala	Gly	100	105	110	
Tyr	Asn	Tyr	Leu	Phe	Ala	Arg	Gly	Ser	Arg	Ile	Ala	Asn	Tyr	Gln	Ile	115	120	125	
Asn	Gly	Ile	Pro	Val	Ala	Asp	Ala	Leu	Ala	Asp	Thr	Gly	Asn	Ala	Asn	130	135	140	
Thr	Ala	Ala	Tyr	Glu	Arg	Val	Glu	Val	Val	Arg	Gly	Val	Ala	Gly	Leu	145	150	155	160
Leu	Asp	Gly	Thr	Gly	Glu	Pro	Ser	Ala	Thr	Val	Asn	Leu	Val	Arg	Lys	165	170	175	
Arg	Pro	Thr	Arg	Lys	Pro	Leu	Phe	Glu	Val	Arg	Ala	Glu	Ala	Gly	Asn	180	185	190	
Arg	Lys	His	Phe	Gly	Leu	Gly	Ala	Asp	Val	Ser	Gly	Ser	Leu	Asn	Ala	195	200	205	
Glu	Gly	Thr	Leu	Arg	Gly	Arg	Leu	Val	Ser	Thr	Phe	Gly	Arg	Gly	Asp				

210	215	220
Ser Trp Arg Gln Arg Glu Arg Ser Arg Asp Ala Glu Leu Tyr Gly Ile 225 230 235 240		
Leu Glu Tyr Asp Ile Ala Pro Gln Thr Arg Val His Ala Gly Met Asp 245 250 255		
Tyr Gln Gln Ala Lys Glu Thr Ala Asp Ala Pro Leu Ser Tyr Ala Val 260 265 270		
Tyr Asp Ser Gln Gly Tyr Ala Thr Ala Phe Gly Pro Lys Asp Asn Pro 275 280 285		
Ala Thr Asn Trp Ala Asn Ser Arg His Arg Ala Leu Asn Leu Phe Ala 290 295 300		
Gly Ile Glu His Arg Phe Asn Gln Asp Trp Lys Leu Lys Ala Glu Tyr 305 310 315 320		
Asp Tyr Thr Arg Ser Arg Phe Arg Gln Pro Tyr Gly Val Ala Gly Val 325 330 335		
Leu Ser Ile Asp His Asn Thr Ala Ala Thr Asp Leu Ile Pro Gly Tyr 340 345 350		
Trp His Ala Asp Pro Arg Thr His Ser Ala Ser Val Ser Leu Ile Gly 355 360 365		
Lys Tyr Arg Leu Phe Gly Arg Glu His Asp Leu Ile Ala Gly Ile Asn 370 375 380		
Gly Tyr Lys Tyr Ala Ser Asn Lys Tyr Gly Glu Arg Ser Ile Ile Pro 385 390 395 400		
Asn Ala Ile Pro Asn Ala Tyr Glu Phe Ser Arg Thr Gly Ala Tyr Pro 405 410 415		
Gln Pro Ala Ser Phe Ala Gln Thr Ile Pro Gln Tyr Gly Thr Arg Arg 420 425 430		
Gln Ile Gly Gly Tyr Leu Ala Thr Arg Phe Arg Ala Ala Asp Asn Leu 435 440 445		
Ser Leu Ile Leu Gly Gly Arg Tyr Ser Arg Tyr Arg Thr Gly Ser Tyr 450 455 460		
Asp Ser Arg Thr Gln Gly Met Thr Tyr Val Ser Ala Asn Arg Phe Thr 465 470 475 480		
Pro Tyr Thr Gly Ile Val Phe Asp Leu Thr Gly Asn Leu Ser Leu Tyr 485 490 495		
Gly Ser Tyr Ser Ser Leu Phe Val Pro Gln Ser Gln Lys Asp Glu His 500 505 510		

Gly Ser Tyr Leu Lys Pro Val Thr Gly Asn Asn Leu Glu Ala Gly Ile
515 520 525

Lys Gly Glu Trp Leu Glu Gly Arg Leu Asn Ala Ser Ala Ala Val Tyr
530 535 540

Arg Ala Arg Lys Asn Asn Leu Ala Thr Ala Ala Gly Arg Asp Pro Ser
545 550 555 560

Gly Asn Thr Tyr Tyr Arg Ala Ala Asn Gln Ala Lys Thr His Gly Trp
565 570 575

Glu Ile Glu Val Gly Gly Arg Ile Thr Pro Glu Trp Gln Ile Gln Ala
580 585 590

Gly Tyr Ser Gln Ser Lys Thr Arg Asp Gln Asp Gly Ser Arg Leu Asn
595 600 605

Pro Asp Ser Val Pro Glu Arg Ser Phe Lys Leu Phe Thr Ala Tyr His
610 615 620

Phe Ala Pro Glu Ala Pro Ser Gly Trp Thr Ile Gly Ala Gly Val Arg
625 630 635 640

Trp Gln Ser Glu Thr His Thr Asp Pro Ala Thr Leu Arg Ile Pro Asn
645 650 655

Pro Ala Ala Lys Ala Arg Ala Ala Asp Asn Ser Arg Gln Lys Ala Tyr
660 665 670

Ala Val Ala Asp Ile Met Ala Arg Tyr Arg Phe Asn Pro Arg Ala Glu
675 680 685

Leu Ser Leu Asn Val Asp Asn Leu Phe Asn Lys His Tyr Arg Thr Gln
690 695 700

Pro Asp Arg His Ser Tyr Gly Ala Leu Arg Thr Val Asn Ala Ala Phe
705 710 715 720

Thr Tyr Arg Phe Lys
725

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<213> Neisseria gonorrhoeae

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<223> N= Unknown

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<210> 670

<211> 623
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 670

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Arg Gly Ser Arg Ile Ala Asn Tyr Gln Ile Asn Gly Ile Pro Val Ala
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Asp Ala Leu Ala Asp Thr Gly Asn Ala Asn Thr Ala Ala Tyr Glu Arg
 35 40 45

Val Glu Val Val Arg Gly Val Ala Gly Leu Pro Asp Gly Thr Gly Glu

50 55 60

Pro Ser Ala Thr Val Asn Leu Val Arg Lys His Pro Thr Arg Lys Pro
 65 70 75 80

Leu Phe Glu Val Arg Ala Glu Ala Gly Asn Arg Lys His Phe Gly Leu
 85 90 95

Gly Ala Asp Val Ser Gly Ser Leu Asn Ala Glu Gly Thr Leu Arg Gly
 100 105 110

Arg Leu Val Ser Thr Phe Gly Arg Gly Asp Ser Trp Arg Gln Leu Glu
 115 120 125

Arg Ser Arg Asp Ala Glu Leu Tyr Gly Ile Leu Glu Tyr Asp Ile Ala
 130 135 140

Pro Gln Thr Arg Val His Ala Gly Met Asp Tyr Gln Gln Ala Lys Glu
 145 150 155 160

Thr Ala Asp Ala Pro Leu Ser Tyr Ala Val Tyr Asp Ser Gln Gly Tyr
 165 170 175

Ala Thr Ala Phe Gly Pro Lys Asp Asn Pro Ala Thr Asn Trp Ser Asn
 180 185 190

Ser Arg Asn Arg Ala Leu Asn Leu Phe Ala Gly Ile Glu His Arg Phe
 195 200 205

Asn Gln Asp Trp Lys Leu Lys Ala Glu Tyr Asp Tyr Thr Arg Ser Arg
 210 215 220

Phe Arg Gln Pro Tyr Gly Val Ala Gly Val Leu Ser Ile Asp His Ser
 225 230 235 240

Thr Ala Ala Thr Asp Leu Ile Pro Gly Tyr Trp His Ala Asp Pro Arg
 245 250 255

Thr His Ser Ala Ser Met Ser Leu Thr Gly Lys Tyr Arg Leu Phe Gly
 260 265 270

Arg Glu His Asp Leu Ile Ala Gly Ile Asn Gly Tyr Lys Tyr Ala Ser
 275 280 285
 Asn Lys Tyr Gly Glu Arg Ser Ile Ile Pro Asn Ala Ile Pro Asn Ala
 290 295 300
 Tyr Glu Phe Ser Arg Thr Gly Ala Tyr Pro Gln Pro Ser Ser Phe Ala
 305 310 315 320
 Gln Thr Ile Pro Gln Tyr Asp Thr Arg Arg Gln Ile Gly Gly Tyr Leu
 325 330 335
 Ala Thr Arg Phe Arg Ala Ala Asp Asn Leu Ser Leu Ile Leu Gly Gly
 340 345 350
 Arg Tyr Ser Arg Tyr Arg Ala Gly Ser Tyr Asn Ser Arg Thr Gln Gly
 355 360 365
 Met Thr Tyr Val Ser Ala Asn Arg Phe Thr Pro Tyr Thr Gly Ile Val
 370 375 380
 Phe Asp Leu Thr Gly Asn Leu Ser Leu Tyr Gly Ser Tyr Ser Ser Leu
 385 390 395 400
 Phe Val Pro Gln Leu Gln Lys Asp Glu His Gly Ser Tyr Leu Lys Pro
 405 410 415
 Val Thr Gly Asn Asn Leu Glu Ala Asp Ile Lys Gly Glu Trp Leu Glu
 420 425 430
 Gly Arg Leu Asn Ala Ser Ala Ala Val Tyr Arg Ala Arg Lys Asn Asn
 435 440 445
 Leu Ala Thr Ala Ala Gly Arg Asp Gln Ser Gly Asn Thr Tyr Tyr Arg
 450 455 460
 Ala Ala Asn Gln Ala Lys Thr His Gly Trp Glu Ile Glu Val Gly Gly
 465 470 475 480
 Arg Ile Thr Pro Glu Trp Gln Ile Gln Ala Gly Tyr Ser Gln Ser Lys
 485 490 495
 Pro Arg Asp Gln Asp Gly Ser Arg Leu Asn Pro Asp Ser Val Pro Glu
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 Arg Ser Phe Lys Leu Phe Thr Ala Tyr His Leu Ala Pro Glu Ala Pro
 515 520 525
 Ser Gly Arg Thr Ile Gly Ala Gly Val Arg Arg Gln Gly Glu Thr His
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 Thr Asp Pro Ala Ala Leu Arg Ile Pro Asn Pro Ala Ala Lys Ala Arg
 545 550 555 560

Ala Val Ala Asn Ser Arg Gln Lys Ala Tyr Ala Val Ala Asp Ile Met
565 570 575

Ala Arg Tyr Arg Phe Asn Pro Arg Thr Glu Leu Ser Leu Asn Val Asp
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Asn Leu Phe Asn Lys His Tyr Arg Thr Gln Pro Asp Arg His Ser Tyr
595 600 605

Gly Ala Leu Arg Thr Val Asn Ala Ala Phe Thr Tyr Arg Phe Lys
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<211> 2178
<212> DNA
<213> Neisseria gonorrhoeae

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gccgcggtgt accgcgcccg taaaaacaac ctgcgccaccg cagcaggacg cgaccagagc 1680
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 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 672

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Ser Thr Glu Leu Pro Thr Ile Thr Val Thr Ala Asp Arg Thr Ala Ser
 35 40 45

Ser Asn Asp Gly Tyr Thr Val Ser Gly Thr His Thr Pro Phe Gly Leu
 50 55 60

Pro Met Thr Leu Arg Glu Ile Pro Gln Ser Val Ser Val Ile Thr Ser
 65 70 75 80

Gln Gln Met Arg Asp Gln Asn Ile Lys Thr Leu Asp Arg Ala Leu Leu
 85 90 95

Gln Ala Thr Gly Thr Ser Arg Gln Ile Tyr Gly Ser Asp Arg Ala Gly
 100 105 110

Tyr Asn Tyr Leu Phe Ala Arg Gly Ser Arg Ile Ala Asn Tyr Gln Ile
 115 120 125

Asn Gly Ile Pro Val Ala Asp Ala Leu Ala Asp Thr Gly Asn Ala Asn
 130 135 140

Thr Ala Ala Tyr Glu Arg Val Glu Val Val Arg Gly Val Ala Gly Leu
 145 150 155 160

Pro Asp Gly Thr Gly Glu Pro Ser Ala Thr Val Asn Leu Val Arg Lys
 165 170 175

His Pro Thr Arg Lys Pro Leu Phe Glu Val Arg Ala Glu Ala Gly Asn
 180 185 190

Arg Lys His Phe Gly Leu Gly Ala Asp Val Ser Gly Ser Leu Asn Ala
 195 200 205

Glu Gly Thr Leu Arg Gly Arg Leu Val Ser Thr Phe Gly Arg Gly Asp
 210 215 220

Ser Trp Arg Gln Leu Glu Arg Ser Arg Asp Ala Glu Leu Tyr Gly Ile
 225 230 235 240

Leu Glu Tyr Asp Ile Ala Pro Gln Thr Arg Val His Ala Gly Met Asp
 245 250 255

Tyr Gln Gln Ala Lys Glu Thr Ala Asp Ala Pro Leu Ser Tyr Ala Val

260										265										270										
Tyr	Asp	Ser	Gln	Gly	Tyr	Ala	Thr	Ala	Phe	Gly	Pro	Lys	Asp	Asn	Pro															
	275						280					285																		
Ala	Thr	Asn	Trp	Ser	Asn	Ser	Arg	Asn	Arg	Ala	Leu	Asn	Leu	Phe	Ala															
	290					295					300																			
Gly	Ile	Glu	His	Arg	Phe	Asn	Gln	Asp	Trp	Lys	Leu	Lys	Ala	Glu	Tyr															
305					310					315				320																
Asp	Tyr	Thr	Arg	Ser	Arg	Phe	Arg	Gln	Pro	Tyr	Gly	Val	Ala	Gly	Val															
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Leu	Ser	Ile	Asp	His	Ser	Thr	Ala	Ala	Thr	Asp	Leu	Ile	Pro	Gly	Tyr															
			340					345					350																	
Trp	His	Ala	Asp	Pro	Arg	Thr	His	Ser	Ala	Ser	Met	Ser	Leu	Thr	Gly															
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Lys	Tyr	Arg	Leu	Phe	Gly	Arg	Glu	His	Asp	Leu	Ile	Ala	Gly	Ile	Asn															
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Gly	Tyr	Lys	Tyr	Ala	Ser	Asn	Lys	Tyr	Gly	Glu	Arg	Ser	Ile	Ile	Pro															
385					390					395				400																
Asn	Ala	Ile	Pro	Asn	Ala	Tyr	Glu	Phe	Ser	Arg	Thr	Gly	Ala	Tyr	Pro															
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Gln	Pro	Ser	Ser	Phe	Ala	Gln	Thr	Ile	Pro	Gln	Tyr	Asp	Thr	Arg	Arg															
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Gln	Ile	Gly	Gly	Tyr	Leu	Ala	Thr	Arg	Phe	Arg	Ala	Ala	Asp	Asn	Leu															
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Ser	Leu	Ile	Leu	Gly	Gly	Arg	Tyr	Ser	Arg	Tyr	Arg	Ala	Gly	Ser	Tyr															
	450					455					460																			
Asn	Ser	Arg	Thr	Gln	Gly	Met	Thr	Tyr	Val	Ser	Ala	Asn	Arg	Phe	Thr															
465					470					475				480																
Pro	Tyr	Thr	Gly	Ile	Val	Phe	Asp	Leu	Thr	Gly	Asn	Leu	Ser	Leu	Tyr															
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Gly	Ser	Tyr	Ser	Ser	Leu	Phe	Val	Pro	Gln	Leu	Gln	Lys	Asp	Glu	His															
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Gly	Ser	Tyr	Leu	Lys	Pro	Val	Thr	Gly	Asn	Asn	Leu	Glu	Ala	Asp	Ile															
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Lys	Gly	Glu	Trp	Leu	Glu	Gly	Arg	Leu	Asn	Ala	Ser	Ala	Ala	Val	Tyr															
	530					535					540																			
Arg	Ala	Arg	Lys	Asn	Asn	Leu	Ala	Thr	Ala	Ala	Gly	Arg	Asp	Gln	Ser															
545					550					555				560																

Gly Asn Thr Tyr Tyr Arg Ala Ala Asn Gln Ala Lys Thr His Gly Trp
 565 570 575
 Glu Ile Glu Val Gly Gly Arg Ile Thr Pro Glu Trp Gln Ile Gln Ala
 580 585 590
 Gly Tyr Ser Gln Ser Lys Pro Arg Asp Gln Asp Gly Ser Arg Leu Asn
 595 600 605
 Pro Asp Ser Val Pro Glu Arg Ser Phe Lys Leu Phe Thr Ala Tyr His
 610 615 620
 Leu Ala Pro Glu Ala Pro Ser Gly Arg Thr Ile Gly Ala Gly Val Arg
 625 630 635 640
 Arg Gln Gly Glu Thr His Thr Asp Pro Ala Ala Leu Arg Ile Pro Asn
 645 650 655
 Pro Ala Ala Lys Ala Arg Ala Val Ala Asn Ser Arg Gln Lys Ala Tyr
 660 665 670
 Ala Val Ala Asp Ile Met Ala Arg Tyr Arg Phe Asn Pro Arg Thr Glu
 675 680 685
 Leu Ser Leu Asn Val Asp Asn Leu Phe Asn Lys His Tyr Arg Thr Gln
 690 695 700
 Pro Asp Arg His Ser Tyr Gly Ala Leu Arg Thr Val Asn Ala Ala Phe
 705 710 715 720
 Thr Tyr Arg Phe Lys
 725

<210> 673
 <211> 366
 <212> DNA
 <213> Neisseria meningitidis

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<220>
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 <223> N= Unknown

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 ccggaaatgg tgtgcgcggg cgtgtcgccg ggaacggcaa tcatatccaa gccgaccgaa 120
 caaacggcgg tcatggcttc gagtttgatc agcgtcagca cgcttgcttc ggcggcggca 180
 atcatacctt cgtcttcgga aacgggggata aacgcgccac tcaaaccccc gaccgcgctg 240
 gaagccatca tgccgccttt ttacacggca tcgttcagca atgccaaagc tgctgttggtg 300
 ccgtgcgtac cgcagacgct caagcccatt tnttcaagaa tgcggtgccac tnagtcgccc 360
 acggggg 366

<210> 674
 <211> 122
 <212> PRT
 <213> Neisseria meningitidis

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 <223> Xaa= any amino acid

<220>
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 <222> (118)..(118)
 <223> Xaa= any amino acid

<400> 674
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Ser Ala Met Met Pro Glu Met Val Cys Ala Gly Val Ser Pro Gly Thr

20 25 30

Ala Ile Ile Ser Lys Pro Thr Glu Gln Thr Ala Val Met Ala Ser Ser
 35 40 45

Leu Ser Ser Val Ser Thr Pro Ala Ser Ala Ala Ile Ile Pro Ser
 50 55 60

Ser Ser Glu Thr Gly Ile Asn Ala Pro Leu Lys Pro Pro Thr Ala Leu
 65 70 75 80

Glu Ala Ile Met Pro Pro Phe Phe Thr Ala Ser Phe Ser Asn Ala Lys
 85 90 95

Ala Ala Val Val Pro Cys Val Pro Gln Thr Leu Lys Pro Ile Xaa Ser
 100 105 110

Arg Met Arg Ala Thr Xaa Ser Pro Thr Gly
 115 120

<210> 675
 <211> 924
 <212> DNA
 <213> Neisseria meningitidis

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 ccggaaatgg tgtgcgcggg cgtgtcgccg ggaacggcaa tcatatccaa gccgaccgaa 120
 caaacggcgg tcatggcttc gagtttgtcc agcgtcagca cgcttgcttc ggcggcggca 180
 atcatacctt cgtcttcgga aacgggggata aacgcgccac tcaaaccocc gaccgcgctg 240
 gaagccatca tgccgccttt tttcacggca tcgttcagca atgccaaagc tgctgttggtg 300
 ccgtgcgtac cgcagacgct caagcccatt tcttcaagaa tgcgtgccac tgagtcgccc 360
 acggcggggg tcggcgccag cgacaagtcg agaataccaa acgggatatt cagcattttt 420
 gaggcttcgc ggccgatgag ttcgcccacg cgggtaattt tgaaagcagt tttcttcact 480

acttcgcaa cttcggtcaa tgtcgttgca tctgaatttt ccaacgcggc ttttacgaca	540
cctgggcccgcg atacgccgac attgataacg gcatccgctt cgcccgaacc atgaaacgcg	600
cccgccataa acgggttgtc ttccaccgcg ttgcagaaca cgacaatttt agcgcagccg	660
aaaccttcgg gcgtgatttc cgcgtgcgt ttgacggttt cgcccgccag cttgaccgca	720
tccatattga taccggcacg cgtactgccg atattgatgg agctgcacac aatatcggtg	780
gtcttcatcg cttcgggaat ggagcggatt aacacctcat ccgaaggcga catccctttt	840
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aaagtttgcg ccacgctgac gtaa	924

<210> 676
 <211> 306
 <212> PRT
 <213> Neisseria meningitidis

<400> 676

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20 25 30	
Ala Ile Ile Ser Lys Pro Thr Glu Gln Thr Ala Val Met Ala Ser Ser	
35 40 45	
Leu Ser Ser Val Ser Thr Pro Ala Ser Ala Ala Ala Ile Ile Pro Ser	
50 55 60	
Ser Ser Glu Thr Gly Ile Asn Ala Pro Leu Lys Pro Pro Thr Ala Leu	
65 70 75 80	
Glu Ala Ile Met Pro Pro Phe Phe Thr Ala Ser Phe Ser Asn Ala Lys	
85 90 95	
Ala Ala Val Val Pro Cys Val Pro Gln Thr Leu Lys Pro Ile Ser Ser	
100 105 110	
Arg Met Arg Ala Thr Glu Ser Pro Thr Ala Gly Val Gly Ala Ser Asp	
115 120 125	
Lys Ser Arg Ile Pro Asn Gly Ile Phe Ser Ile Phe Glu Ala Ser Arg	
130 135 140	
Pro Met Ser Ser Pro Thr Arg Val Ile Leu Lys Ala Val Phe Phe Thr	
145 150 155 160	
Thr Ser Ala Thr Ser Val Asn Val Val Ala Ser Glu Phe Ser Asn Ala	
165 170 175	
Ala Phe Thr Thr Pro Gly Pro Asp Thr Pro Thr Leu Ile Thr Ala Ser	
180 185 190	
Ala Ser Pro Glu Pro Asn Ala Pro Ala Ile Asn Gly Leu Ser Ser Thr	
195 200 205	
Ala Leu Gln Asn Thr Thr Ile Leu Ala Gln Pro Lys Pro Ser Gly Val	

210	215	220
Ile Ser Ala Val Arg Leu Thr Val Ser Pro Ala Ser Leu Thr Ala Ser		
225	230	235 240
Ile Leu Ile Pro Ala Arg Val Leu Pro Ile Leu Met Glu Leu His Thr		
	245	250 255
Ile Ser Val Val Phe Ile Ala Ser Gly Met Glu Arg Ile Asn Thr Ser		
	260	265 270
Ser Glu Gly Asp Ile Pro Phe Cys Thr Asn Ala Glu Lys Pro Pro Ile		
	275	280 285
Lys Asp Thr Pro Met Ala Leu Ala Ala Leu Ser Lys Val Cys Ala Thr		
	290	295 300

Leu Thr
305

<210> 677
<211> 924
<212> DNA

<213> Neisseria meningitidis

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<220>
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<223> N= Unknown

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caaacggcgg tcatcgcttc gagtttatcc aacgtcagca cgcttgcttc ggcgggcgga 180
atcatacctt cgtcttcgga nacggggata aacgcgccac tcaaaccgcc aaccgcgctc 240
gaagccatca tgccgccctt tttaacggca tcgttcagca atgccaaagc tgctgttggtg 300
ccgtgcgtac cgcagacgct caaaccatt tcttcaagaa tgcgcgccac cgagtcgccg 360
acggcagggg tcggtgccag cgacaagtcg agaataccaa acgggatatt cagcattttt 420
gaggcttcgc ggccgatgag ttgcgccacg cgggtaattt tgaaggcggg tttcttcaca 480
acttcggcaa cttcgggtcaa tgtcgttgca tccgaatttt ccaacgcggc ttttacgaca 540
cccgggccgg atacgccgac attaatcaca gcatccgctt cgcttgagcc gtgaaacgcg 600
cccgccatan acgggttgtc ttccnccgcg ttgcagaaca cgacgatttt ggcgagccg 660
aaaccttcta gtgtgatttc anccgtgcgt ttgatgggtt cgcccgccag tctgaccgcg 720
tccatattga taccggcgcg cgtactgccg atattgatgg agctgcacac gatatcagta 780
gtcttcatcg cttcgggaat ggaacggatn aacacctcgt cagaaggcga catacctttt 840
tgcaccagcg cggaaaagcc gccataaaa gacacgccga tggctttggc agccttatcc 900
aaagtttgcg ccacgctgac gtaa 924

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<210> 678

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<211> 306
<212> PRT
<213> Neisseria meningitidis

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<220>
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<223> Xaa= any amino acid

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<220>
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<223> Xaa= any amino acid

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<220>
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<223> Xaa= any amino acid

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<220>
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<223> Xaa= any amino acid

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<220>
<221> misc_feature
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<223> Xaa= any amino acid

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<220>
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<222> (269)..(269)

<223> Xaa= any amino acid

<400> 678

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1 5 10 15

Ser Ala Met Met Pro Glu Met Val Cys Ala Gly Val Ser Pro Gly Thr
20 25 30

Ala Ile Ile Ser Xaa Pro Thr Glu Gln Thr Ala Val Ile Ala Ser Ser
35 40 45

Leu Ser Asn Val Ser Thr Pro Ala Ser Ala Ala Ile Ile Pro Ser
50 55 60

Ser Ser Xaa Thr Gly Ile Asn Ala Pro Leu Lys Pro Pro Thr Ala Leu
65 70 75 80

Glu Ala Ile Met Pro Pro Phe Phe Thr Ala Ser Phe Ser Asn Ala Lys
85 90 95

Ala Ala Val Val Pro Cys Val Pro Gln Thr Leu Lys Pro Ile Ser Ser
100 105 110

Arg Met Arg Ala Thr Glu Ser Pro Thr Ala Gly Val Gly Ala Ser Asp
115 120 125

Lys Ser Arg Ile Pro Asn Gly Ile Phe Ser Ile Phe Glu Ala Ser Arg
130 135 140

Pro Met Ser Ser Pro Thr Arg Val Ile Leu Lys Ala Val Phe Phe Thr
145 150 155 160

Thr Ser Ala Thr Ser Val Asn Val Val Ala Ser Glu Phe Ser Asn Ala
165 170 175

Ala Phe Thr Thr Pro Gly Pro Asp Thr Pro Thr Leu Ile Thr Ala Ser
180 185 190

Ala Ser Pro Glu Pro Asn Ala Pro Ala Ile Xaa Gly Leu Ser Ser Xaa
195 200 205

Ala Leu Gln Asn Thr Thr Ile Leu Ala Gln Pro Lys Pro Ser Ser Val
210 215 220

Ile Ser Xaa Val Arg Leu Met Val Ser Pro Ala Ser Leu Thr Ala Ser
225 230 235 240

Ile Leu Ile Pro Ala Arg Val Leu Pro Ile Leu Met Glu Leu His Thr
245 250 255

Ile Ser Val Val Phe Ile Ala Ser Gly Met Glu Arg Xaa Asn Thr Ser
260 265 270

Ser Glu Gly Asp Ile Pro Phe Cys Thr Ser Ala Glu Lys Pro Pro Ile
 275 280 285

Lys Asp Thr Pro Met Ala Leu Ala Ala Leu Ser Lys Val Cys Ala Thr
 290 295 300

Leu Thr
 305

<210> 679
 <211> 924
 <212> DNA
 <213> Neisseria gonorrhoeae

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 ccggaaatgg tgtgcgcggg cgtgtcgccg ggaacggcaa tcatgtccaa accaacggag 120
 cagacggcgg tcatggcttc gagtttgatc agcgtcaaca cgcctgcctc ggcggcggca 180
 atcatacctt cgtcttcgga aacggggata aacgcgcgcg tcaaaccgcc gaccgcgctg 240
 gaagccatca tgccgccctt tttcacggca tcgttcagca atgccaaagc tgctgttggtg 300
 ccgtgcgtac cgcagacgct caagcccatt tcttcaagaa tgcgcgccac cgagtcgccc 360
 acggcggggg tcggtgccag cgacaaatcg agaatgccga acgggatatt cagcattttt 420
 gaggtttcgc gaccgatgag ttgcgccacg cgggtgattt tgaaagcggg tttcttcacg 480
 acttcggcga cctcggtcag gctgaccgcg tccgaatttt ccagcgcggc tttgaccacg 540
 cctggaccgg atacgccgac attaatcaca gcatccgctt cgcccagacc gtggaacgca 600
 cccgccataa acggattgtc ttccaccgcg ttgcagaaca cgacgatttt ggcgacgccc 660

aaaccttcgg gtgtgatttc agccgtgcgt ttgatgggtt cgctgccag cttgaccgca 720
 tccatattga taccggcacg cgtgctgccg atattgatgg agctgcacac gatatcggta 780
 gttttcatcg cttcgggaac ggaacggatc aacacctcat ccgaaggcga catacctttt 840
 tgcaccagcg cggaaaagcc gccgataaag gacacgccga tggctttggc tgccttgtcc 900
 aaagtctgcg ccacgctgac ataa 924

<210> 680
 <211> 307
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 680
 Met Arg Thr Ala Val Val Leu Leu Leu Ile Met Pro Met Ala Ala Ser
 1 5 10 15

Ser Ala Met Met Pro Glu Met Val Cys Ala Gly Val Ser Pro Gly Thr
 20 25 30

Ala Ile Met Ser Lys Pro Thr Glu Gln Thr Ala Val Met Ala Ser Ser
 35 40 45

Leu Ser Ser Val Asn Thr Pro Ala Ser Ala Ala Ala Ile Ile Pro Ser
 50 55 60

Ser Ser Glu Thr Gly Ile Asn Ala Pro Leu Lys Pro Pro Thr Ala Leu
 65 70 75 80

Glu Ala Ile Met Pro Pro Phe Phe Thr Ala Ser Phe Ser Asn Ala Lys
 85 90 95

Ala Ala Val Val Pro Cys Val Pro Gln Thr Leu Lys Pro Ile Ser Ser
 100 105 110

Arg Met Arg Ala Thr Glu Ser Pro Thr Ala Gly Val Gly Ala Ser Asp
 115 120 125

Lys Ser Arg Met Pro Asn Gly Ile Phe Ser Ile Phe Glu Ala Ser Arg
 130 135 140

Pro Met Ser Ser Pro Thr Arg Val Ile Leu Lys Ala Val Phe Phe Thr
 145 150 155 160

Thr Ser Ala Thr Ser Val Arg Leu Thr Ala Ser Glu Phe Ser Ser Ala
 165 170 175

Ala Leu Thr Thr Pro Gly Pro Asp Thr Pro Thr Leu Ile Thr Ala Ser
 180 185 190

Ala Ser Pro Glu Pro Trp Asn Ala Pro Ala Ile Asn Gly Leu Ser Ser
 195 200 205

Thr Ala Leu Gln Asn Thr Thr Ile Leu Ala Gln Pro Lys Pro Ser Gly
 210 215 220

Val Ile Ser Ala Val Arg Leu Met Val Ser Pro Ala Ser Leu Thr Ala
 225 230 235 240

Ser Ile Leu Ile Pro Ala Arg Val Leu Pro Ile Leu Met Glu Leu His
 245 250 255

Thr Ile Ser Val Val Phe Ile Ala Ser Gly Thr Glu Arg Ile Asn Thr
 260 265 270

Ser Ser Glu Gly Asp Ile Pro Phe Cys Thr Ser Ala Glu Lys Pro Pro
 275 280 285

Ile Lys Asp Thr Pro Met Ala Leu Ala Ala Leu Ser Lys Val Cys Ala
 290 295 300

Thr Leu Thr
 305

<210> 681

<211> 183

<212> DNA

<213> Neisseria meningitidis

<400> 681

accgacgtgc aaaaagagtt ggtcggcgaa caacgcaagt gggcgagga aaaaatcagc 60
 aactgccgac aagccgccgc gcaggcagac cggcaggaat acgccgaata cctcaagctg 120
 caatgcgaca cgcgatgac gcgcgaacgg atacagtatc ttcgcggcta ttccatcgat 180
 tag 183

<210> 682

<211> 60

<212> PRT

<213> Neisseria meningitidis

<400> 682

Thr Asp Val Gln Lys Glu Leu Val Gly Glu Gln Arg Lys Trp Ala Gln
1 5 10 15

Glu Lys Ile Ser Asn Cys Arg Gln Ala Ala Ala Gln Ala Asp Arg Gln
20 25 30

Glu Tyr Ala Glu Tyr Leu Lys Leu Gln Cys Asp Thr Arg Met Thr Arg
35 40 45

Glu Arg Ile Gln Tyr Leu Arg Gly Tyr Ser Ile Asp
50 55 60

<210> 683

<211> 1017

<212> DNA

<213> Neisseria meningitidis

<400> 683

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gaaccgcca aggcattgga atgcgccaac cccgccgtgt tgcaaggcat acgcggcaat 120
attcaggaaa cgctcacgca ggaagcgcgt tctttcgcgc gcgaagacgg caggcagttt 180
gtcgatgccg acaaaattat cgccgccgcc tacggtttgg cgttttcttt ggaacacgct 240
tcggaaacgc aggaaggcgg gcgcacgttc tgtatcgccg atttgaacat taccgtgccg 300
tctgaaacgc ttgccgatgc caaggcaaac agccccctgt tgtacgggga aactgctttg 360

tcggatattg tgcggcagaa gacgggcggc aatgtcgagt ttaaagacgg cgtattgacg 420
gcagccgtcc gcttcctgcc cgtcaaagac ggtcagacgg catttgctga caacacggtc 480
ggtatggcgg cgaaacgct gtctgccgcg ctgctgcctt acggcgtgaa gagcatcgtg 540
atgatatagc gcaaggcggg gaaaaaagaa gacgcggtca ggattttgag cggaaaaagcc 600
cgtgaagaag aaccgtccaa acccacgccc gaagacattt tggaacacaa tgccgccggc 660
ggcgatgcgg gcgtacccca agccgcagaa ggcgcgcccg aaccggaaat cctgcatcct 720
gacgacggcg agcgtgccga taccgttacc gtatcacggg gcgaagtgga agaggcgcgc 780
gtacaaaacc agcgtgccga atccgaaatt accaaaacttt ggggaggact cgataccgac 840
gtgcaaaaag agttggtcgg cgaacaacgc aagtgggcgc agggaaaaaat cagcaactgc 900
cgacaagccg ccgcgcaggc agaccggcag gaatacgcgg aatacctcaa gctgcaatgc 960
gacacgcgga tgacgcgcga acggatacag tatcttcgcg gctattccat cgattag 1017

<210> 684

<211> 338

<212> PRT

<213> Neisseria meningitidis

<400> 684

Met Tyr Arg Lys Leu Ile Ala Leu Pro Phe Ala Leu Leu Leu Ala Ala
1 5 10 15

Cys Gly Arg Glu Glu Pro Pro Lys Ala Leu Glu Cys Ala Asn Pro Ala
20 25 30

Val Leu Gln Gly Ile Arg Gly Asn Ile Gln Glu Thr Leu Thr Gln Glu
35 40 45

Ala Arg Ser Phe Ala Arg Glu Asp Gly Arg Gln Phe Val Asp Ala Asp
 50 55 60
 Lys Ile Ile Ala Ala Ala Tyr Gly Leu Ala Phe Ser Leu Glu His Ala
 65 70 75 80
 Ser Glu Thr Gln Glu Gly Gly Arg Thr Phe Cys Ile Ala Asp Leu Asn
 85 90 95
 Ile Thr Val Pro Ser Glu Thr Leu Ala Asp Ala Lys Ala Asn Ser Pro
 100 105 110
 Leu Leu Tyr Gly Glu Thr Ala Leu Ser Asp Ile Val Arg Gln Lys Thr
 115 120 125
 Gly Gly Asn Val Glu Phe Lys Asp Gly Val Leu Thr Ala Ala Val Arg
 130 135 140
 Phe Leu Pro Val Lys Asp Gly Gln Thr Ala Phe Val Asp Asn Thr Val
 145 150 155 160
 Gly Met Ala Ala Gln Thr Leu Ser Ala Ala Leu Leu Pro Tyr Gly Val
 165 170 175
 Lys Ser Ile Val Met Ile Asp Gly Lys Ala Val Lys Lys Glu Asp Ala
 180 185 190
 Val Arg Ile Leu Ser Gly Lys Ala Arg Glu Glu Glu Pro Ser Lys Pro
 195 200 205
 Thr Pro Glu Asp Ile Leu Glu His Asn Ala Ala Gly Gly Asp Ala Gly
 210 215 220
 Val Pro Gln Ala Ala Glu Gly Ala Pro Glu Pro Glu Ile Leu His Pro
 225 230 235 240
 Asp Asp Gly Glu Arg Ala Asp Thr Val Thr Val Ser Arg Gly Glu Val
 245 250 255
 Glu Glu Ala Arg Val Gln Asn Gln Arg Ala Glu Ser Glu Ile Thr Lys
 260 265 270
 Leu Trp Gly Gly Leu Asp Thr Asp Val Gln Lys Glu Leu Val Gly Glu
 275 280 285
 Gln Arg Lys Trp Ala Gln Glu Lys Ile Ser Asn Cys Arg Gln Ala Ala
 290 295 300
 Ala Gln Ala Asp Arg Gln Glu Tyr Ala Glu Tyr Leu Lys Leu Gln Cys
 305 310 315 320
 Asp Thr Arg Met Thr Arg Glu Arg Ile Gln Tyr Leu Arg Gly Tyr Ser
 325 330 335
 Ile Asp

<210> 685
<211> 1017
<212> DNA
<213> Neisseria meningitidis

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<223> N= Unknown

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<222> (115)..(115)
<223> N= Unknown

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<223> N= Unknown

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<223> N= Unknown

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<223> N= Unknown

<220>
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<223> N= Unknown

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<223> N= Unknown

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<223> N= Unknown

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<223> N= Unknown

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<223> N= Unknown

<220>
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<222> (274)..(274)
<223> N= Unknown

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<222> (458)..(458)
<223> N= Unknown

<220>
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<222> (586)..(586)
<223> N= Unknown

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<222> (592)..(592)
<223> N= Unknown

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<223> N= Unknown

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<223> N= Unknown

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<223> N= Unknown

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<223> N= Unknown

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<222> (865)..(865)
<223> N= Unknown

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attcaggaaa cgctcacgca ggaagcgctg tctttcgcgc gcgaagacng cangcagttt 180
gtcgaatgccg acnaaattat cgccgccgcc tangntnngn ngntntcttt ggaacacgct 240
tcggaaacgc aggaaggcgg gcgcacgttc tgtntcgcgc atttgaacat taccgtgccg 300
tctgaaacgc ttgccgatgc caaggcaaac agccccctgc tgtacgggga aaccgctttg 360
tcggatattg tgcggcagaa gacgggcggc aatgtcgagt ttaaagacgg cgtattgacg 420
gcagccgtcc gcttctacc cgtcaaagac ggtcagangg catttgtcga caacacggtc 480
ggtatggcgg cgcaaacgct gtctgccgcg ttgctgcctt acggcgtgaa gagcatcgtg 540
atgatagacg gcaaggcggg aaaaaagaa gacgcgggtc ggattntgag cnganaagcc 600
cgtgaanaag aaccgtccaa anccnngccc gaagacattt tggaacataa tgccgccgga 660
ggggatgcag acgtacccca agccggagaa gacgcgcccg aaccggaaat cctgcacct 720
gacgacggcg agcgtgccga taccgttacc gtatcacggg gcgaagtgga agaggcgcn 780
gtacaaaacc agcgtgcgga atccgaaatt accaaacttt ggggaggact cgataccgac 840
gtgcaaaaag agttggtcgg cgaanaacgc aagtgggcgc aggaaaaaat cagcaactgc 900
cgacaagccg ccgcgcaggc agaccggcag gaatacgccg aatacctcaa gctgcaatgc 960
gacacgcgga tgacgcgcga acggatacag tatcttcgcg gctattccat cgattag 1017

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<210> 686
<211> 338
<212> PRT
<213> Neisseria meningitidis

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<220>
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<222> (36)..(36)
<223> Xaa= any amino acid

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<220>
<221> misc_feature
<222> (39)..(39)

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<223> Xaa= any amino acid

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<220>
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<222> (57)..(58)
<223> Xaa= any amino acid

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<220>
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<222> (65)..(65)
<223> Xaa= any amino acid

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<223> Xaa= any amino acid

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<222> (92)..(92)
<223> Xaa= any amino acid

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<220>

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<221> misc_feature
 <222> (153)..(153)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (196)..(196)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (198)..(199)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (203)..(203)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (208)..(209)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (289)..(289)
 <223> Xaa= any amino acid

<400> 686
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Cys Gly Arg Glu Glu Pro Pro Lys Ala Leu Glu Cys Ala Asn Pro Ala
 20 25 30

Val Leu Gln Xaa Ile Arg Xaa Asn Ile Gln Glu Thr Leu Thr Gln Glu
 35 40 45

Ala Arg Ser Phe Ala Arg Glu Asp Xaa Xaa Gln Phe Val Asp Ala Asp
 50 55 60

Xaa Ile Ile Ala Ala Ala Xaa Xaa Xaa Xaa Xaa Ser Leu Glu His Ala
 65 70 75 80

Ser Glu Thr Gln Glu Gly Gly Arg Thr Phe Cys Xaa Ala Asp Leu Asn
 85 90 95

Ile Thr Val Pro Ser Glu Thr Leu Ala Asp Ala Lys Ala Asn Ser Pro
 100 105 110

Leu Leu Tyr Gly Glu Thr Ala Leu Ser Asp Ile Val Arg Gln Lys Thr
 115 120 125

Gly Gly Asn Val Glu Phe Lys Asp Gly Val Leu Thr Ala Ala Val Arg

130	135	140
Phe Leu Pro Val Lys Asp Gly Gln Xaa Ala Phe Val Asp Asn Thr Val		
145	150	155 160
Gly Met Ala Ala Gln Thr Leu Ser Ala Ala Leu Leu Pro Tyr Gly Val		
	165 170	175
Lys Ser Ile Val Met Ile Asp Gly Lys Ala Val Lys Lys Glu Asp Ala		
	180 185	190
Val Arg Ile Xaa Ser Xaa Xaa Ala Arg Glu Xaa Glu Pro Ser Lys Xaa		
	195 200	205
Xaa Pro Glu Asp Ile Leu Glu His Asn Ala Ala Gly Gly Asp Ala Asp		
	210 215	220
Val Pro Gln Ala Gly Glu Asp Ala Pro Glu Pro Glu Ile Leu His Pro		
225	230	235 240
Asp Asp Gly Glu Arg Ala Asp Thr Val Thr Val Ser Arg Gly Glu Val		
	245	250 255
Glu Glu Ala Arg Val Gln Asn Gln Arg Ala Glu Ser Glu Ile Thr Lys		
	260	265 270
Leu Trp Gly Gly Leu Asp Thr Asp Val Gln Lys Glu Leu Val Gly Glu		
	275	280 285
Xaa Arg Lys Trp Ala Gln Glu Lys Ile Ser Asn Cys Arg Gln Ala Ala		
	290 295	300
Ala Gln Ala Asp Arg Gln Glu Tyr Ala Glu Tyr Leu Lys Leu Gln Cys		
305	310	315 320
Asp Thr Arg Met Thr Arg Glu Arg Ile Gln Tyr Leu Arg Gly Tyr Ser		
	325	330 335

Ile Asp

<210> 687
 <211> 1017
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 687

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attcaggaaa cgctcacgca ggaagcgcgt tctttcgcgc gcgaagacgg caggcagttt	180
gtcgatgccg acaaaattat cgccgccgcc tacggtttgg cgttttcttt ggaacacgct	240
tcggaaacgc aggaaggcgg gcgcacgttc tgtatcgccg atttgaacat taccgtgccg	300
tctgaaacgc ttgccgatgc cgaggcaaac agccccctgc tgtatgggga aacgtctttg	360
gcagacatcg tgcagcagaa gacggggcgg aatgtcgagt ttaaagacgg cgtattgacg	420
gcagccgtcc gcttcctgcc cgccaaagac gctcggacgg catttatcga caacacggtc	480
ggtatggcga cgcaaacgct gtctgccgcg ttgctgcctt acggcgtgaa gagcatcgtg	540

atgatagacg gcaaggcggg gacaaaagaa gacgcgggtca gggttttgag cggcaaagcc 600
 cgtgaagaag aaccgtccaa acccaccccc gaagacattt tggaacacaa tgccgcgggc 660
 ggcgatgcgg gcgtacccca agccgcagaa ggcgcacccg aacccgaaat cctgcatccc 720
 gacgacgtcg agcgtgccga taccgttacc gtatcacggg gcgaagtgga agaggcgcg 780
 gtacaaaacc aacgtgcgga atccgaaatt accaaacttt ggggaggact cgataccgac 840
 gtgcaaaaag agttggtcgg cgaacagcgc aagtgggcgc aggaaaaaat cagcaactgc 900
 cgacaagccg ccgcgcaggc agaccggcag gaatacgccg aatacctcaa gctccaatgc 960
 gacacgcgga tgacgcgcga acggatacag tatcttcgcg gctattccat cgattag 1017

<210> 688
 <211> 338
 <212> PRT
 <213> *Neisseria gonorrhoeae*

<400> 688

Met Tyr Arg Lys Leu Ile Ala Leu Pro Phe Ala Leu Leu Leu Ala Ala
 1 5 10 15

Cys Gly Arg Glu Glu Pro Pro Lys Ala Leu Glu Cys Ala Asn Pro Ala
 20 25 30

Val Leu Gln Asp Ile Arg Gly Ser Ile Gln Glu Thr Leu Thr Gln Glu
 35 40 45

Ala Arg Ser Phe Ala Arg Glu Asp Gly Arg Gln Phe Val Asp Ala Asp
 50 55 60

Lys Ile Ile Ala Ala Ala Tyr Gly Leu Ala Phe Ser Leu Glu His Ala
 65 70 75 80

Ser Glu Thr Gln Glu Gly Gly Arg Thr Phe Cys Ile Ala Asp Leu Asn
 85 90 95

Ile Thr Val Pro Ser Glu Thr Leu Ala Asp Ala Glu Ala Asn Ser Pro
 100 105 110

Leu Leu Tyr Gly Glu Thr Ser Leu Ala Asp Ile Val Gln Gln Lys Thr
 115 120 125

Gly Gly Asn Val Glu Phe Lys Asp Gly Val Leu Thr Ala Ala Val Arg
 130 135 140

Phe Leu Pro Ala Lys Asp Ala Arg Thr Ala Phe Ile Asp Asn Thr Val
 145 150 155 160

Gly Met Ala Thr Gln Thr Leu Ser Ala Ala Leu Leu Pro Tyr Gly Val
 165 170 175

Lys Ser Ile Val Met Ile Asp Gly Lys Ala Val Thr Lys Glu Asp Ala
 180 185 190

Val Arg Val Leu Ser Gly Lys Ala Arg Glu Glu Glu Pro Ser Lys Pro
 195 200 205

Thr Pro Glu Asp Ile Leu Glu His Asn Ala Ala Gly Gly Asp Ala Gly
 210 215 220

Val Pro Gln Ala Ala Glu Gly Ala Pro Glu Pro Glu Ile Leu His Pro
225 230 235 240

Asp Asp Val Glu Arg Ala Asp Thr Val Thr Val Ser Arg Gly Glu Val
245 250 255

Glu Glu Ala Arg Val Gln Asn Gln Arg Ala Glu Ser Glu Ile Thr Lys
260 265 270

Leu Trp Gly Gly Leu Asp Thr Asp Val Gln Lys Glu Leu Val Gly Glu
275 280 285

Gln Arg Lys Trp Ala Gln Glu Lys Ile Ser Asn Cys Arg Gln Ala Ala
290 295 300

Ala Gln Ala Asp Arg Gln Glu Tyr Ala Glu Tyr Leu Lys Leu Gln Cys
305 310 315 320

Asp Thr Arg Met Thr Arg Glu Arg Ile Gln Tyr Leu Arg Gly Tyr Ser
325 330 335

Ile Asp

<210> 689
<211> 909
<212> DNA
<213> Neisseria meningitidis

<400> 689
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gcacttgccg tcattaccgc ccgcgtactg ctgtcttttag gcatcggtat tctggwysgc 120
gttgcccttt tggtcggcgg caaccccgtc gacggtctga cacacctgaa agacatggtc 180
gtcggccttg cttgggcaga cgsygattgg tcgctgggca aacccaaaat cttgggtttc 240
ckgatacttt tgggtatttt tacttccctg ctgacctact ccggcagcaa tacttcgctg 300

gtattcggcg gcacttgccg cgtctttgcc gtctgtctct gcacgctcgg caccgattaaa 360
accgccgact atcccaaagc cgtttggcag ggtgcgaaat ctatgttcgg cgcaatcgcc 420
attttaatcc tcgcttggtc catcagtagc gttgtcggcg aaatgcacac cggcgattac 480
ctctccacac tggttgcggg caacatccat cccggcttcc tgcccgtcat cctcttctg 540
ctcgccagcg tgatggcggt tgccacaggg acaagctggg ggacgttcgg cattatgctg 600
ccgattgccg ccgccatggc ggtcaaagtc gaacccgcgc tgattatccc gtgtatgtcc 660
gcagtaatgg cggggggcgg atgcggcgac cactgctcgc ccatttccga caccgaccatc 720
ctgtcgtcca ccggcgcgcg ctgcaaccac atcgaccacg ttacctcgca actgccttac 780
gccttaaccg ttgccgcgcg cgccgcatcg ggctacctcg cattgggtct gacaaaatcc 840
gcgctgttgg gctttggcac gacaggcatt gtattggcgg tgctgatttt tctgttgaaa 900
gataaaaaa 909

<210> 690
<211> 303
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature

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<222> (39)..(40)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (68)..(68)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (81)..(81)
<223> Xaa= any amino acid

<400> 690
Met Gln Leu Ile Asp Tyr Ser His Ser Phe Phe Ser Val Val Pro Pro
1          5          10          15

Phe Leu Ala Leu Ala Leu Ala Val Ile Thr Arg Arg Val Leu Leu Ser
          20          25          30

Leu Gly Ile Gly Ile Leu Xaa Xaa Val Ala Phe Leu Val Gly Gly Asn
          35          40          45

Pro Val Asp Gly Leu Thr His Leu Lys Asp Met Val Val Gly Leu Ala
          50          55          60

Trp Ser Asp Xaa Asp Trp Ser Leu Gly Lys Pro Lys Ile Leu Val Phe
65          70          75          80

Xaa Ile Leu Leu Gly Ile Phe Thr Ser Leu Leu Thr Tyr Ser Gly Ser
          85          90          95

Asn Thr Ser Leu Val Phe Gly Gly Thr Cys Gly Val Phe Ala Val Val
          100          105          110

Leu Cys Thr Leu Gly Thr Ile Lys Thr Ala Asp Tyr Pro Lys Ala Val
          115          120          125

Trp Gln Gly Ala Lys Ser Met Phe Gly Ala Ile Ala Ile Leu Ile Leu
          130          135          140

Ala Trp Leu Ile Ser Thr Val Val Gly Glu Met His Thr Gly Asp Tyr
145          150          155          160

Leu Ser Thr Leu Val Ala Gly Asn Ile His Pro Gly Phe Leu Pro Val
          165          170          175

Ile Leu Phe Leu Leu Ala Ser Val Met Ala Phe Ala Thr Gly Thr Ser
          180          185          190

Trp Gly Thr Phe Gly Ile Met Leu Pro Ile Ala Ala Ala Met Ala Val
          195          200          205

Lys Val Glu Pro Ala Leu Ile Ile Pro Cys Met Ser Ala Val Met Ala
          210          215          220

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Gly Ala Val Cys Gly Asp His Cys Ser Pro Ile Ser Asp Thr Thr Ile
 225 230 235 240

Leu Ser Ser Thr Gly Ala Arg Cys Asn His Ile Asp His Val Thr Ser
 245 250 255

Gln Leu Pro Tyr Ala Leu Thr Val Ala Ala Ala Ala Ala Ser Gly Tyr
 260 265 270

Leu Ala Leu Gly Leu Thr Lys Ser Ala Leu Leu Gly Phe Gly Thr Thr
 275 280 285

Gly Ile Val Leu Ala Val Leu Ile Phe Leu Leu Lys Asp Lys Lys
 290 295 300

<210> 691
 <211> 1521
 <212> DNA
 <213> Neisseria meningitidis

<400> 691
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 gcaattggcg tcattaccgc ccgcgtactg ctgtcttttag gcatcggtat tctggtcggc 120
 gttgcctttt tggtcggcgg caaccccgtc gacggtctga cacacctgaa agacatggtc 180
 gtcggcttgg cttggtcaga cggcgattgg tcgctgggca aacccaaaat cttgggtttc 240
 ctgatacttt tgggtatttt tacttccctg ctgacctact ccggcagcaa tcaggcggtt 300
 gccgactggg caaacgcgca cattaataaac cggcgcgggc cgaaaatgct gaccgcctgc 360
 ctggtgttcg taacctttat cgacgactat ttccacagtc tcgccgtcgg tgcgattgcc 420
 cgccccgta cgcacaagtt taaagtttcc cgcaccaaac tcgcctacat cctcgactcc 480
 actgccgctc ctatgtgctg gctgatgccc gtttcaagct ggggcgcgct gattatcgcc 540
 acgcttgccg gactgctcgt tacctacaaa atcacccaat acacgccgat ggggacgttt 600
 gtcgccatga gcctgatgaa ctattacgca ctggttgccc tgattatggt gttcgtcgtc 660
 gcatggtttt ccttcgacat cggctcgatg gcacgtttcg aacaagccgc gttgaacgaa 720
 gccacgatg aaactgccgt ttcagacgct accaaaggct gtgtttacgc actgattatt 780
 cccgttttgg ccttaatcgc ctcaacggtt tccgccatga tctacaccgg cgcgcaggca 840
 agcgaaacct tcagcatttt gggggcattt gaaaacacgg acgtaaacac ttcgctggta 900
 ttggcgggca cttgcggcgt ccttgccgct gttctctgca cgctcggcac gattaaaacc 960
 gccgactatc ccaaagccgt ttggcagggg gcgaaatcta tggtcggcgc aatcgccatt 1020

 ttaatcctcg cttgggtcat cagtacggtt gtcggcgaaa tgcacaccgg cgattacctc 1080
 tccacactgg ttgcgggcaa catccatccc ggcttcctgc ccgtcactct cttcctgctc 1140
 gccagcgtga tggcgtttgc cacaggcaca agctggggga cgttcggcat tatgctgccg 1200
 attgccgccc ccatggcggg caaagtcgaa cccgcgctga ttatcccgtg tatgtccgca 1260
 gtaatggcgg gggcggtatg cggcgaccac tgctcgccca tttccgacac gaccatcctg 1320
 tcgtccaccg gcgcgcgctg caaccacatc gaccacgtta cctcgcaact gccttacgcc 1380
 ttaaccgttg ccgccgccgc cgcacggggc tacctcgcgt tgggtctgac aaaatccgcg 1440
 ctggtgggct ttggcacgac aggcattgta ttggcgggtg tgatttttct gttgaaagat 1500
 aaaaaacgcg ccaacgcctg a 1521

<210> 692
 <211> 506
 <212> PRT
 <213> Neisseria meningitidis

<400> 692
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Phe Leu Ala Leu Ala Leu Ala Val Ile Thr Arg Arg Val Leu Leu Ser			
20		25	30
Leu Gly Ile Gly Ile Leu Val Gly Val Ala Phe Leu Val Gly Gly Asn			
35		40	45
Pro Val Asp Gly Leu Thr His Leu Lys Asp Met Val Val Gly Leu Ala			
50		55	60
Trp Ser Asp Gly Asp Trp Ser Leu Gly Lys Pro Lys Ile Leu Val Phe			
65		70	75
Leu Ile Leu Leu Gly Ile Phe Thr Ser Leu Leu Thr Tyr Ser Gly Ser			
85		90	95
Asn Gln Ala Phe Ala Asp Trp Ala Lys Arg His Ile Lys Asn Arg Arg			
100		105	110
Gly Ala Lys Met Leu Thr Ala Cys Leu Val Phe Val Thr Phe Ile Asp			
115		120	125
Asp Tyr Phe His Ser Leu Ala Val Gly Ala Ile Ala Arg Pro Val Thr			
130		135	140
Asp Lys Phe Lys Val Ser Arg Thr Lys Leu Ala Tyr Ile Leu Asp Ser			
145		150	155
Thr Ala Ala Pro Met Cys Val Leu Met Pro Val Ser Ser Trp Gly Ala			
165		170	175
Ser Ile Ile Ala Thr Leu Ala Gly Leu Leu Val Thr Tyr Lys Ile Thr			
180		185	190
Glu Tyr Thr Pro Met Gly Thr Phe Val Ala Met Ser Leu Met Asn Tyr			
195		200	205
Tyr Ala Leu Phe Ala Leu Ile Met Val Phe Val Val Ala Trp Phe Ser			
210	215	220	
Phe Asp Ile Gly Ser Met Ala Arg Phe Glu Gln Ala Ala Leu Asn Glu			
225	230	235	240
Ala His Asp Glu Thr Ala Val Ser Asp Ala Thr Lys Gly Arg Val Tyr			
245	250	255	
Ala Leu Ile Ile Pro Val Leu Ala Leu Ile Ala Ser Thr Val Ser Ala			
260	265	270	
Met Ile Tyr Thr Gly Ala Gln Ala Ser Glu Thr Phe Ser Ile Leu Gly			
275	280	285	
Ala Phe Glu Asn Thr Asp Val Asn Thr Ser Leu Val Phe Gly Gly Thr			
290	295	300	

Cys Gly Val Leu Ala Val Val Leu Cys Thr Leu Gly Thr Ile Lys Thr
 305 310 315 320
 Ala Asp Tyr Pro Lys Ala Val Trp Gln Gly Ala Lys Ser Met Phe Gly
 325 330 335
 Ala Ile Ala Ile Leu Ile Leu Ala Trp Leu Ile Ser Thr Val Val Gly
 340 345 350
 Glu Met His Thr Gly Asp Tyr Leu Ser Thr Leu Val Ala Gly Asn Ile
 355 360 365
 His Pro Gly Phe Leu Pro Val Ile Leu Phe Leu Leu Ala Ser Val Met
 370 375 380
 Ala Phe Ala Thr Gly Thr Ser Trp Gly Thr Phe Gly Ile Met Leu Pro
 385 390 395 400
 Ile Ala Ala Ala Met Ala Val Lys Val Glu Pro Ala Leu Ile Ile Pro
 405 410 415
 Cys Met Ser Ala Val Met Ala Gly Ala Val Cys Gly Asp His Cys Ser
 420 425 430
 Pro Ile Ser Asp Thr Thr Ile Leu Ser Ser Thr Gly Ala Arg Cys Asn
 435 440 445
 His Ile Asp His Val Thr Ser Gln Leu Pro Tyr Ala Leu Thr Val Ala
 450 455 460
 Ala Ala Ala Ala Ser Gly Tyr Leu Ala Leu Gly Leu Thr Lys Ser Ala
 465 470 475 480
 Leu Leu Gly Phe Gly Thr Thr Gly Ile Val Leu Ala Val Leu Ile Phe
 485 490 495
 Leu Leu Lys Asp Lys Lys Arg Ala Asn Ala
 500 505

<210> 693
 <211> 1521
 <212> DNA
 <213> Neisseria meningitidis

<220>
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 <222> (229)..(229)
 <223> N= Unknown

<220>
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 <222> (415)..(415)
 <223> N= Unknown

<220>
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 <222> (1120)..(1120)
 <223> N= Unknown

<220>
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 <222> (1362)..(1362)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (1410)..(1410)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (1457)..(1457)
 <223> N= Unknown

<400> 693
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 gttgcctttt tggtcggcgc caaccccgctc gacggctctga cacacctgaa agacatggtc 180
 gtcggccttg cttggtcaga cggcgattgg tcgctgggca aacccaaant cttgggtttc 240
 ctgatacttt tgggtatttt tacttccctg ctgacctact ccggcagcaa tcaggcggtt 300
 gccgactggg caaaacggca cattaataaac cggcgcgccg cgaaaatgct gaccgcctgc 360
 ctcggtgttc taacctttat cgacgactat ttccacagtc tcgccgctcg tgcgnttgcc 420
 cgccccgtta ccgacaagtt taaagtttcc cgcgccaaac tcgcctacat cctcgactcc 480
 actgccgcgc ctatgtgcgt gctgatgccc gtttcaagct ggggcgcgc gattatcgcc 540
 acgcttgccg gactgctcgt tacctacaaa atcacccaat acacgccgat ggggacgttt 600
 gtgcgccatga gcctgatgaa ctattacgca ctggttgccc tgattatggt gttcgctcgtc 660
 gcatggttct ccttcgacat cggctcgatg gcacgtttcg aacaagccgc gttgaacgaa 720
 gccacgatg aaactgccgt ttcagacggc agctggggca gggtttacgc attgattatt 780
 cccgttttgg ccttaatcgc ctcaacgggt tccgccatga tctacaccgg tgcacaggca 840
 agcgaaacct tcagcatttt ggggtgcattt gaaaatacgg acgtgaacac ttcgctggta 900
 ttcggcggca cttgcggcgt gcttgccgct gtcctctgca cgctcggcac gattaaaatc 960
 gccgattatc ccaaagccgt ttggcagggt gcgaaatcca tgttcggcgc aatcgccatt 1020
 ttaatccttg cctggctcat cagtacgggt gtcggcgaaa tgcacacagg cgactacctc 1080
 tccacgctgg ttgcgggcaa catccatccc ggcttctcgn ccgtcatcct tttcctgctc 1140
 gccagcgtga tggcggttgc cacaggcaca agctggggga cgttcggcat catgctgccc 1200

attgccgcgc ccattggcggc caaagtcgat ccctcactga ttatcccgtg tatgtccgcc 1260
 gtgatggcgc gggcggtatg cggcgaccac tgctcgccca tttccgacac gaccatcctg 1320
 tcgtccaccg gcgcgcgctg caaccacatc gaccacgtta cntcgcaact gccttacgcc 1380
 ttaaccgttg ccgccgccgc cgcacgggn tacctcgcat tgggtctgac aaaatccgcg 1440
 ctggtgggtt ttggcangac aggcattgta ttggcggtgc tgatttttct gttgaaagat 1500
 aaaaaacgcg ccaacgcctg a 1521

<210> 694
 <211> 506
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature

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<222> (77)..(77)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (139)..(139)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (374)..(374)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (486)..(486)
<223> Xaa= any amino acid

<400> 694
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Phe Leu Ala Leu Ala Leu Ala Val Ile Thr Arg Arg Val Leu Leu Ser
20          25          30

Leu Gly Ile Gly Ile Leu Val Gly Val Ala Phe Leu Val Gly Gly Asn
35          40          45

Pro Val Asp Gly Leu Thr His Leu Lys Asp Met Val Val Gly Leu Ala
50          55          60

Trp Ser Asp Gly Asp Trp Ser Leu Gly Lys Pro Lys Xaa Leu Val Phe
65          70          75          80

Leu Ile Leu Leu Gly Ile Phe Thr Ser Leu Leu Thr Tyr Ser Gly Ser
85          90          95

Asn Gln Ala Phe Ala Asp Trp Ala Lys Arg His Ile Lys Asn Arg Arg
100         105         110

Gly Ala Lys Met Leu Thr Ala Cys Leu Val Phe Val Thr Phe Ile Asp
115         120         125

Asp Tyr Phe His Ser Leu Ala Val Gly Ala Xaa Ala Arg Pro Val Thr
130         135         140

Asp Lys Phe Lys Val Ser Arg Ala Lys Leu Ala Tyr Ile Leu Asp Ser
145         150         155         160

Thr Ala Ala Pro Met Cys Val Leu Met Pro Val Ser Ser Trp Gly Ala
165         170         175

Ser Ile Ile Ala Thr Leu Ala Gly Leu Leu Val Thr Tyr Lys Ile Thr
180         185         190

Glu Tyr Thr Pro Met Gly Thr Phe Val Ala Met Ser Leu Met Asn Tyr

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195	200	205
Tyr Ala Leu Phe Ala Leu Ile Met Val Phe Val Val Ala Trp Phe Ser 210 215 220		
Phe Asp Ile Gly Ser Met Ala Arg Phe Glu Gln Ala Ala Leu Asn Glu 225 230 235 240		
Ala His Asp Glu Thr Ala Val Ser Asp Gly Ser Trp Gly Arg Val Tyr 245 250 255		
Ala Leu Ile Ile Pro Val Leu Ala Leu Ile Ala Ser Thr Val Ser Ala 260 265 270		
Met Ile Tyr Thr Gly Ala Gln Ala Ser Glu Thr Phe Ser Ile Leu Gly 275 280 285		
Ala Phe Glu Asn Thr Asp Val Asn Thr Ser Leu Val Phe Gly Gly Thr 290 295 300		
Cys Gly Val Leu Ala Val Val Leu Cys Thr Leu Gly Thr Ile Lys Ile 305 310 315 320		
Ala Asp Tyr Pro Lys Ala Val Trp Gln Gly Ala Lys Ser Met Phe Gly 325 330 335		
Ala Ile Ala Ile Leu Ile Leu Ala Trp Leu Ile Ser Thr Val Val Gly 340 345 350		
Glu Met His Thr Gly Asp Tyr Leu Ser Thr Leu Val Ala Gly Asn Ile 355 360 365		
His Pro Gly Phe Leu Xaa Val Ile Leu Phe Leu Leu Ala Ser Val Met 370 375 380		
Ala Phe Ala Thr Gly Thr Ser Trp Gly Thr Phe Gly Ile Met Leu Pro 385 390 395 400		
Ile Ala Ala Ala Met Ala Val Lys Val Asp Pro Ser Leu Ile Ile Pro 405 410 415		
Cys Met Ser Ala Val Met Ala Gly Ala Val Cys Gly Asp His Cys Ser 420 425 430		
Pro Ile Ser Asp Thr Thr Ile Leu Ser Ser Thr Gly Ala Arg Cys Asn 435 440 445		
His Ile Asp His Val Thr Ser Gln Leu Pro Tyr Ala Leu Thr Val Ala 450 455 460		
Ala Ala Ala Ala Ser Gly Tyr Leu Ala Leu Gly Leu Thr Lys Ser Ala 465 470 475 480		
Leu Leu Gly Phe Gly Xaa Thr Gly Ile Val Leu Ala Val Leu Ile Phe 485 490 495		

Leu Leu Lys Asp Lys Lys Arg Ala Asn Ala
500 505

<210> 695
<211> 1521
<212> DNA
<213> Neisseria gonorrhoeae

<400> 695
atgcagctga ttgactattc acattcattt ttctcgggtg tgccaccctt tttggcactg 60
gcacttgccg tcattaccgc ccgcgtactg ctgtcttttag gcatcgggtat tttggtcggc 120
gttgccctttt tggtcggcgg caaccccgctc gacgggtctga cacacctgaa agacatggtc 180
gtcggccttg cttgggcaga cggcgattgg tcgctgggca aacaaaaaat cttgggtttc 240
ctgatacttt tgggcatttt cacttcactg ctgacctact ccggcagcaa tcaggcggtt 300
gccgactggg caaaacggca cattaataaac cgggtgcggcg cgaaaatgct gaccgcctgc 360
ctcgtgttcg taacctttat cgacgactat ttccacagcc tcgccgtcgg tgcgattgcc 420
cgccccgtta ccgacaagtt taaagtttcc cgcgccaaac tcgcctacat cctcgactcc 480
actgcctcgc ccatgtgcgt gctgatgccc gtttcaagct ggggcgcgct gattatcgcc 540
acgcttgccg gattgctcgt tacctacaaa attaccgaat acacgccgat ggggacgttt 600
gtcgccatga gcctgatgaa ctattacgcg ctggttgccc tgattatggt attcgctcgc 660
gcattggtct ccttcgacat cggctcgatg gcgcgtttcg aacaggctgc gttgaacgaa 720
gcccaggacg aaaccgccc ctcagacgct accaaaggct gtgtttacgc attgattatt 780
cccgttttgg ccttaatcgc ctcaacgggt tccgccatga tctacaccgg cgcgcaggca 840
agcgaaacct tcagcatttt gggggcattt gaaaataccg acgtaaacac ttcgctggta 900
ttcggcggca cttgcggcgt gcttgccgct gtcctctgca cgttcggcac gattaaaacc 960
gccgattatc ccaaagccgt gtggcagggt gcgaaatcca tggtcggcgc aatcgccatt 1020
ttaatcctcg cctggctcat cagtacgggt gtcggcgaaa tgcacacggg cgactacctc 1080
tccacgctgg ttgcgggcaa catccatccc ggcttctcgc ccgtcatcct cttcctgctc 1140
gccagcgtga tggcggttgc cacaggcaca agctggggga cgttcggcat tatgctgccg 1200
attgccgccg ccatggcggg caaagtcgaa cccgcgctga ttatcccgtg tatgtccgca 1260
gtaatggcgg gggcggtatg cggcgaccac tggtcgccca tctccgacac gaccatcctg 1320
tcgtccaccg gcgcgcgctg caaccacatc gaccacgtta cctcgcaact gccttatgcc 1380
ctgacggttg ccgccgccgc cgcacgccc tacctcgcat tgggtctgac aaaatccgcg 1440
ctgttgggct ttggcacgac cggatttgta ttggcgggtg tgatttttct gttgaaagat 1500
aaaaaacgcg ccgacgtttg a 1521

<210> 696
<211> 506
<212> PRT
<213> Neisseria gonorrhoeae

<400> 696
Met Gln Leu Ile Asp Tyr Ser His Ser Phe Phe Ser Val Val Pro Pro
1 5 10 15

Phe Leu Ala Leu Ala Leu Ala Val Ile Thr Arg Arg Val Leu Leu Ser
20 25 30

Leu Gly Ile Gly Ile Leu Val Gly Val Ala Phe Leu Val Gly Gly Asn
35 40 45

Pro Val Asp Gly Leu Thr His Leu Lys Asp Met Val Val Gly Leu Ala
50 55 60

Trp Ala Asp Gly Asp Trp Ser Leu Gly Lys Pro Lys Ile Leu Val Phe
65 70 75 80

Leu Ile Leu Leu Gly Ile Phe Thr Ser Leu Leu Thr Tyr Ser Gly Ser
 85 90 95
 Asn Gln Ala Phe Ala Asp Trp Ala Lys Arg His Ile Lys Asn Arg Cys
 100 105 110
 Gly Ala Lys Met Leu Thr Ala Cys Leu Val Phe Val Thr Phe Ile Asp
 115 120 125
 Asp Tyr Phe His Ser Leu Ala Val Gly Ala Ile Ala Arg Pro Val Thr
 130 135 140
 Asp Lys Phe Lys Val Ser Arg Ala Lys Leu Ala Tyr Ile Leu Asp Ser
 145 150 155 160
 Thr Ala Ser Pro Met Cys Val Leu Met Pro Val Ser Ser Trp Gly Ala
 165 170 175
 Ser Ile Ile Ala Thr Leu Ala Gly Leu Leu Val Thr Tyr Lys Ile Thr
 180 185 190
 Glu Tyr Thr Pro Met Gly Thr Phe Val Ala Met Ser Leu Met Asn Tyr
 195 200 205
 Tyr Ala Leu Phe Ala Leu Ile Met Val Phe Val Val Ala Trp Phe Ser
 210 215 220
 Phe Asp Ile Gly Ser Met Ala Arg Phe Glu Gln Ala Ala Leu Asn Glu
 225 230 235 240
 Ala Gln Asp Glu Thr Ala Ala Ser Asp Ala Thr Lys Gly Arg Val Tyr
 245 250 255
 Ala Leu Ile Ile Pro Val Leu Ala Leu Ile Ala Ser Thr Val Ser Ala
 260 265 270
 Met Ile Tyr Thr Gly Ala Gln Ala Ser Glu Thr Phe Ser Ile Leu Gly
 275 280 285
 Ala Phe Glu Asn Thr Asp Val Asn Thr Ser Leu Val Phe Gly Gly Thr
 290 295 300
 Cys Gly Val Leu Ala Val Val Leu Cys Thr Phe Gly Thr Ile Lys Thr
 305 310 315 320
 Ala Asp Tyr Pro Lys Ala Val Trp Gln Gly Ala Lys Ser Met Phe Gly
 325 330 335
 Ala Ile Ala Ile Leu Ile Leu Ala Trp Leu Ile Ser Thr Val Val Gly
 340 345 350
 Glu Met His Thr Gly Asp Tyr Leu Ser Thr Leu Val Ala Gly Asn Ile
 355 360 365
 His Pro Gly Phe Leu Pro Val Ile Leu Phe Leu Leu Ala Ser Val Met

370	375	380
Ala Phe Ala Thr Gly Thr Ser Trp Gly Thr Phe Gly Ile Met Leu Pro		
385	390	395 400
Ile Ala Ala Ala Met Ala Val Lys Val Glu Pro Ala Leu Ile Ile Pro		
	405	410 415
Cys Met Ser Ala Val Met Ala Gly Ala Val Cys Gly Asp His Cys Ser		
	420	425 430
Pro Ile Ser Asp Thr Thr Ile Leu Ser Ser Thr Gly Ala Arg Cys Asn		
	435	440 445
His Ile Asp His Val Thr Ser Gln Leu Pro Tyr Ala Leu Thr Val Ala		
	450	455 460
Ala Ala Ala Ala Ser Gly Tyr Leu Ala Leu Gly Leu Thr Lys Ser Ala		
465	470	475 480
Leu Leu Gly Phe Gly Thr Thr Gly Ile Val Leu Ala Val Leu Ile Phe		
	485	490 495
Leu Leu Lys Asp Lys Lys Arg Ala Asp Val		
	500	505

<210> 697
 <211> 247
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (20)..(20)
 <223> N= Unknown

<400> 697	
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ccaaaattct gacttgggat gaaagcggcc gattactctc ggaactgtct atccgccacc	120
atcaacgcaa cggggtggtt ttggagtgg atgaagatgg ttctaaaaag agcgaagtgt	180
ttatcaggat gacaagttgg tcaggaaaac ccagtgggat aaggatggtt atttaatcga	240
accctga	247

<210> 698
 <211> 82
 <212> PRT

<213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (7)..(7)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature

<222> (60)..(60)

<223> Xaa= any amino acid

<400> 698

Lys Gln Trp Tyr Ala Asp Xaa Ser Ile Lys Thr Glu Met Val Met Val
1 5 10 15

Asn Asp Glu Pro Ala Lys Ile Leu Thr Trp Asp Glu Ser Gly Arg Leu
20 25 30

Leu Ser Glu Leu Ser Ile Arg His His Gln Arg Asn Gly Val Val Leu
35 40 45

Glu Trp Tyr Glu Asp Gly Ser Lys Lys Ser Glu Xaa Val Tyr Gln Asp
50 55 60

Asp Lys Leu Val Arg Lys Thr Gln Trp Asp Lys Asp Gly Tyr Leu Ile
65 70 75 80

Glu Pro

<210> 699

<211> 738

<212> DNA

<213> Neisseria meningitidis

<400> 699

atgaaaaaat	tatctcggat	tgtattttca	actgtcctgt	tgggtttttc	ggccgctttg	60
ccggcgcaga	cctattctgt	ttattttaat	cagaacggaa	agctgacggc	gacgatgtct	120
tctgccgctt	atatcaggca	atatagtgtg	gtggcgggta	ttgcgcacgc	gcaggatttt	180
tattatccgt	cgatgaagaa	atattctgaa	ccttatatcg	ttgcttcaac	gcaaatcaaa	240
tcttttgtgc	ctaccctgca	aaacgggatg	ttgattttgt	ggcattttta	tggtcagaaa	300
aaaatggcgg	ggggcttcag	caagggtaag	ccggacgggg	agtgggtcaa	ctggtatccg	360
aacggtaaaa	aatctgccgt	tatgccttat	aaaaatggct	tgagtgaggg	tacgggatac	420
cgctattacc	gtaacggcgg	caaggaaagc	gaaatccagt	ttaagcaaaa	taaggcaaac	480
ggcgtatgga	agcaatggta	tgccgacggc	agtatcaaga	cggaaatggg	tatgggtcaac	540
gatgagcctg	ccaaaattct	gacttgggat	gaaagcggcc	gattactctc	ggaactgtct	600
atccgccacc	atcaacgcaa	cggggtgggt	ttggagtggg	atgaagatgg	ttctaaaaag	660
agcgaagctg	tttatcagga	tgacaagttg	gtcaggaaaa	cccagtggga	taaggatggg	720
tatttaatcg	aaccctga					738

<210> 700

<211> 245

<212> PRT

<213> Neisseria meningitidis

<400> 700

Met Lys Lys Leu Ser Arg Ile Val Phe Ser Thr Val Leu Leu Gly Phe
1 5 10 15

Ser Ala Ala Leu Pro Ala Gln Thr Tyr Ser Val Tyr Phe Asn Gln Asn
20 25 30

Gly Lys Leu Thr Ala Thr Met Ser Ser Ala Ala Tyr Ile Arg Gln Tyr

35					40					45					
Ser	Val	Val	Ala	Gly	Ile	Ala	His	Ala	Gln	Asp	Phe	Tyr	Tyr	Pro	Ser
50						55					60				
Met	Lys	Lys	Tyr	Ser	Glu	Pro	Tyr	Ile	Val	Ala	Ser	Thr	Gln	Ile	Lys
65					70					75					80
Ser	Phe	Val	Pro	Thr	Leu	Gln	Asn	Gly	Met	Leu	Ile	Leu	Trp	His	Phe
				85					90					95	
Asn	Gly	Gln	Lys	Lys	Met	Ala	Gly	Gly	Phe	Ser	Lys	Gly	Lys	Pro	Asp
			100					105					110		
Gly	Glu	Trp	Val	Asn	Trp	Tyr	Pro	Asn	Gly	Lys	Lys	Ser	Ala	Val	Met
		115					120					125			
Pro	Tyr	Lys	Asn	Gly	Leu	Ser	Glu	Gly	Thr	Gly	Tyr	Arg	Tyr	Tyr	Arg
	130					135					140				
Asn	Gly	Gly	Lys	Glu	Ser	Glu	Ile	Gln	Phe	Lys	Gln	Asn	Lys	Ala	Asn
145					150					155					160
Gly	Val	Trp	Lys	Gln	Trp	Tyr	Ala	Asp	Gly	Ser	Ile	Lys	Thr	Glu	Met
				165					170					175	
Val	Met	Val	Asn	Asp	Glu	Pro	Ala	Lys	Ile	Leu	Thr	Trp	Asp	Glu	Ser
			180					185					190		
Gly	Arg	Leu	Leu	Ser	Glu	Leu	Ser	Ile	Arg	His	His	Gln	Arg	Asn	Gly
		195					200					205			
Val	Val	Leu	Glu	Trp	Tyr	Glu	Asp	Gly	Ser	Lys	Lys	Ser	Glu	Ala	Val
		210				215					220				
Tyr	Gln	Asp	Asp	Lys	Leu	Val	Arg	Lys	Thr	Gln	Trp	Asp	Lys	Asp	Gly
225					230					235					240
Tyr	Leu	Ile	Glu	Pro											
				245											

<210> 701
 <211> 738
 <212> DNA
 <213> Neisseria meningitidis

<220>
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<222> (71)..(71)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (115)..(115)
 <223> N= Unknown

<220>
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 <222> (129)..(129)
 <223> N= Unknown

<220>
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 <222> (177)..(177)
 <223> N= Unknown

<220>
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 <222> (183)..(183)
 <223> N= Unknown

<220>
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 <222> (291)..(291)
 <223> N= Unknown

<220>
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 <222> (309)..(309)
 <223> N= Unknown

<220>
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 <222> (419)..(420)
 <223> N= Unknown

<220>
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 <222> (613)..(613)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (662)..(662)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (714)..(714)
 <223> N= Unknown

<400> 701
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tctgccgcnt atatcaggca atatagtgtg gcggagggtta ttgcgcacgc gcagganttt 180
 tantatccgt cgatgaagaa atattccgaa ctttatatcg ttgcttcaac gcaaatcaaa 240
 tcttttgtgc ctaccctgca aaacggtatg ttgattttgt ggcattttta nggtcagaaa 300
 aaaatggcng ggggcttcag caagggttaag ccggacgggg agtgggtcaa ctggtatccg 360
 aacggtaaaa aatctgccgt tatgccttat aaaaatggtt tgagtgaagg tacggggtnn 420
 cgctattacc gtaacggcgg caaggaaagc gaaatccagt ttaaacagaa taaggcaaac 480

ggcgtatgga agcaatggta tgccgacggc aatatcaaaa cggaaatggg tatgggtcaat	540
gatgagcctg ccaaaattct gacatgggat gaaagcggtc gattactctc ggaactgtct	600
atccatcatc atnaacgtaa tggagtagtc ttagagtggg atgaagatgg ttctaaaaag	660
antgaagctg tttatcagga tgataagttg gtcaggaaaa cccagtggga taangatggg	720
tatttaatcg aaccctga	738

<210> 702
 <211> 245
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (24)..(24)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (39)..(39)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (59)..(59)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (61)..(61)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (97)..(97)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (140)..(140)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (205)..(205)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (221)..(221)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (238)..(238)
 <223> Xaa= any amino acid

<400> 702

Met Lys Lys Leu Ser Arg Ile Val Phe Ser Thr Val Leu Leu Gly Phe
1 5 10 15

Ser Ala Ala Leu Pro Ala Gln Xaa Tyr Ser Val Tyr Phe Asn Gln Asn
20 25 30

Gly Lys Leu Thr Ala Thr Xaa Ser Ser Ala Ala Tyr Ile Arg Gln Tyr
35 40 45

Ser Val Ala Glu Gly Ile Ala His Ala Gln Xaa Phe Xaa Tyr Pro Ser
50 55 60

Met Lys Lys Tyr Ser Glu Pro Tyr Ile Val Ala Ser Thr Gln Ile Lys
65 70 75 80

Ser Phe Val Pro Thr Leu Gln Asn Gly Met Leu Ile Leu Trp His Phe
85 90 95

Xaa Gly Gln Lys Lys Met Ala Gly Gly Phe Ser Lys Gly Lys Pro Asp
100 105 110

Gly Glu Trp Val Asn Trp Tyr Pro Asn Gly Lys Lys Ser Ala Val Met
115 120 125

Pro Tyr Lys Asn Gly Leu Ser Glu Gly Thr Gly Xaa Arg Tyr Tyr Arg
130 135 140

Asn Gly Gly Lys Glu Ser Glu Ile Gln Phe Lys Gln Asn Lys Ala Asn
145 150 155 160

Gly Val Trp Lys Gln Trp Tyr Ala Asp Gly Asn Ile Lys Thr Glu Met
165 170 175

Val Met Val Asn Asp Glu Pro Ala Lys Ile Leu Thr Trp Asp Glu Ser
180 185 190

Gly Arg Leu Leu Ser Glu Leu Ser Ile His His His Xaa Arg Asn Gly
195 200 205

Val Val Leu Glu Trp Tyr Glu Asp Gly Ser Lys Lys Xaa Glu Ala Val
210 215 220

Tyr Gln Asp Asp Lys Leu Val Arg Lys Thr Gln Trp Asp Xaa Asp Gly
225 230 235 240

Tyr Leu Ile Glu Pro
245

<210> 703

<211> 738

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 703

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tctgccgctt	atatcaggca	atatagtgtg	gcggcgggta	tcgcacacgc	gcaggatttt	180
tattatccgt	cgatgaagaa	atattccgaa	ccttatatcg	ttgcttcaac	gcaaatacaa	240
tcttttgtgc	ctaccctgca	aaacggtatg	ttgattttgt	ggcattttta	tggtcagaaa	300
aaaatggcgg	ggggcttcag	caagggttaag	ccggacgggg	aatgggtcaa	ctggtatccg	360
aacggtaaaa	aatctgcggt	tatgccttat	aaaaatggct	tgagtgaggg	tacgggatac	420
cgttattacc	gtaacggcgg	caaggaaagc	gaaatccagt	ttaagcaaaa	taaggcgaac	480
ggcgtatgga	agcaatggta	tgccgatgga	agtatcaaga	cggaaatggg	tatgggtcaac	540
gatgagcctg	ccaaaattct	gacttgggat	gaaagcggcc	gattactttc	ggaactgtct	600
atccgccacc	ataaacgcaa	cgggggtggt	ttggagtggg	atgaagatgg	ttctaaaaag	660
agcgaggctg	tttatcagga	tgacaagttg	gtcaggaaaa	cccaatggga	taaggatggt	720
tatttaatcg	aaccctga					738

<210> 704

<211> 245

<212> PRT

<213> Neisseria gonorrhoeae

<400> 704

Met	Lys	Lys	Leu	Ser	Arg	Ile	Val	Phe	Ser	Ile	Val	Leu	Leu	Gly	Phe
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Ser	Ala	Ala	Leu	Pro	Ala	Gln	Thr	Tyr	Ser	Val	Tyr	Phe	Asn	Gln	Asn
			20					25					30		

Gly	Lys	Leu	Thr	Ala	Thr	Met	Ser	Ser	Ala	Ala	Tyr	Ile	Arg	Gln	Tyr
		35					40					45			

Ser	Val	Ala	Ala	Gly	Ile	Ala	His	Ala	Gln	Asp	Phe	Tyr	Tyr	Pro	Ser
	50					55					60				

Met	Lys	Lys	Tyr	Ser	Glu	Pro	Tyr	Ile	Val	Ala	Ser	Thr	Gln	Ile	Lys
65					70					75				80	

Ser	Phe	Val	Pro	Thr	Leu	Gln	Asn	Gly	Met	Leu	Ile	Leu	Trp	His	Phe
				85					90					95	

Asn	Gly	Gln	Lys	Lys	Met	Ala	Gly	Gly	Phe	Ser	Lys	Gly	Lys	Pro	Asp
			100					105					110		

Gly	Glu	Trp	Val	Asn	Trp	Tyr	Pro	Asn	Gly	Lys	Lys	Ser	Ala	Val	Met
		115					120					125			

Pro	Tyr	Lys	Asn	Gly	Leu	Ser	Glu	Gly	Thr	Gly	Tyr	Arg	Tyr	Tyr	Arg
	130					135					140				

Asn	Gly	Gly	Lys	Glu	Ser	Glu	Ile	Gln	Phe	Lys	Gln	Asn	Lys	Ala	Asn
145					150					155				160	

Gly	Val	Trp	Lys	Gln	Trp	Tyr	Ala	Asp	Gly	Ser	Ile	Lys	Thr	Glu	Met
			165						170					175	

Val	Met	Val	Asn	Asp	Glu	Pro	Ala	Lys	Ile	Leu	Thr	Trp	Asp	Glu	Ser
			180					185					190		

Gly Arg Leu Leu Ser Glu Leu Ser Ile Arg His His Lys Arg Asn Gly
 195 200 205

Val Val Leu Glu Trp Tyr Glu Asp Gly Ser Lys Lys Ser Glu Ala Val
 210 215 220

Tyr Gln Asp Asp Lys Leu Val Arg Lys Thr Gln Trp Asp Lys Asp Gly
 225 230 235 240

Tyr Leu Ile Glu Pro
 245

<210> 705
 <211> 517
 <212> DNA
 <213> Neisseria meningitidis

<400> 705
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 ctgtccgggtt tctattggca cgcgcattgag atgatttggg gttatgccgg actgggtcgtc 180
 atcgcccttcc tgctgaccgc cgtcgccact tggacggggc agccgcccac gcggggcggc 240
 gtatctgggtc ggcttgacta tcttttggct ggctgcgcgg attgccgcct ttatcccggg 300
 ttgggggtgcg tcggcaagcg gcatactcgg tacgctgttt ttctggtacg gcgcggtgtg 360
 catggctttg cccggttatcc gttcgcagaa tcaacgcaac tatgttgccg tgttcgcgct 420
 gttcgtcttg ggcggcacgc atgcggcggt ccacgtccag ctgcacaacg gcaacctagg 480
 cggactcttg agcggattgc agtcgggctt ggtgatg 517

<210> 706
 <211> 172
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (40)..(40)
 <223> Xaa= any amino acid

<400> 706
 Met Lys Phe Thr Lys His Pro Val Trp Ala Met Ala Phe Arg Pro Phe
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Tyr Ser Leu Ala Ala Leu Tyr Gly Ala Leu Ser Val Leu Leu Trp Gly
 20 25 30

Phe Gly Tyr Thr Gly Thr His Xaa Leu Ser Gly Phe Tyr Trp His Ala
 35 40 45

His Glu Met Ile Trp Gly Tyr Ala Gly Leu Val Val Ile Ala Phe Leu
 50 55 60

Leu Thr Ala Val Ala Thr Trp Thr Gly Gln Pro Pro Thr Arg Gly Gly
 65 70 75 80

Val Leu Val Gly Leu Thr Ile Phe Trp Leu Ala Ala Arg Ile Ala Ala
 85 90 95

Phe Ile Pro Gly Trp Gly Ala Ser Ala Ser Gly Ile Leu Gly Thr Leu
100 105 110

Phe Phe Trp Tyr Gly Ala Val Cys Met Ala Leu Pro Val Ile Arg Ser
115 120 125

Gln Asn Gln Arg Asn Tyr Val Ala Val Phe Ala Leu Phe Val Leu Gly
130 135 140

Gly Thr His Ala Ala Phe His Val Gln Leu His Asn Gly Asn Leu Gly
145 150 155 160

Gly Leu Leu Ser Gly Leu Gln Ser Gly Leu Val Met
165 170

<210> 707
<211> 1155
<212> DNA
<213> Neisseria meningitidis

<400> 707
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gctctgtacg ggcgattgtc cgtattgctg tggggTTTTcg gctacacggg aacgcacgag 120
ctgtccggtt tctattggca cgcgcattgag atgatttggg gttatgccgg actgggtcgtc 180
atcgcttcc tgcgtaccgc cgtcgccact tggacggggc agccgcccac gcggggcggc 240
gttctgggtc gcttgactat cttttggctg gctgcgcgga ttgcccgtt tatcccggtt 300
tgggggtcgt cggcaagcgg catactcggg acgctgtttt tctgggtacgg cgcgggtgtgc 360
atggcTTTTg cggttatccg ttgcgagaat caacgcaact atgttgccgt gttcgcgctg 420
ttcgtcttgg gcggcacgca tgcggcggtt cacgtccagc tgcacaacgg caacctaggc 480
ggactcttga gcggattgca gtcgggcttg gtgatgggtg cgggttttat cggctctgatt 540
ggtacgcgga ttatttcggt ttttacgtcc aaacgcttga atgtgccgca gattcccagt 600
ccgaaatggg tggcgcaggc ttgcgtgtgg ctgcccattg tgactgccat gctgatggcg 660
cacggtgtgt tggcttggct gtctgccgtt tttgcctttg cggcaggtgt gatttttacc 720
gtgcaggtgt accgctgggt gtataaaccc gtgttgaaag agccgatgct gtggattctg 780
tttgccgggt atctgtttac cggattgggg ctgattgcgg tcggcgcgtc ttatttcaaa 840
cccgttttcc tcaatctggg tgtgcatctg atcgggggtc gcggtatcgg cgtgctgact 900
ttgggcatga tggcgcgtac cgcgcttggg catacgggca atccgattta tccgccgccc 960
aaagccggtt ccggttgcgt ttggctgatg atggcgggcaa ccgccgtccg tatggttgcc 1020
gtattttctt ccggcactgc ctacacgcac agcatccgca cctcttcggt tttgtttgca 1080
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ggcaggcccc gttga 1155

<210> 708
<211> 384
<212> PRT
<213> Neisseria meningitidis

<400> 708
Met Lys Phe Thr Lys His Pro Val Trp Ala Met Ala Phe Arg Pro Phe
1 5 10 15

Tyr Ser Leu Ala Ala Leu Tyr Gly Ala Leu Ser Val Leu Leu Trp Gly
20 25 30

Phe Gly Tyr Thr Gly Thr His Glu Leu Ser Gly Phe Tyr Trp His Ala

35					40					45									
His	Glu	Met	Ile	Trp	Gly	Tyr	Ala	Gly	Leu	Val	Val	Ile	Ala	Phe	Leu				
50					55					60									
Leu	Thr	Ala	Val	Ala	Thr	Trp	Thr	Gly	Gln	Pro	Pro	Thr	Arg	Gly	Gly				
65					70					75					80				
Val	Leu	Val	Gly	Leu	Thr	Ile	Phe	Trp	Leu	Ala	Ala	Arg	Ile	Ala	Ala				
85					90					95									
Phe	Ile	Pro	Gly	Trp	Gly	Ala	Ser	Ala	Ser	Gly	Ile	Leu	Gly	Thr	Leu				
100					105					110									
Phe	Phe	Trp	Tyr	Gly	Ala	Val	Cys	Met	Ala	Leu	Pro	Val	Ile	Arg	Ser				
115					120					125									
Gln	Asn	Gln	Arg	Asn	Tyr	Val	Ala	Val	Phe	Ala	Leu	Phe	Val	Leu	Gly				
130					135					140									
Gly	Thr	His	Ala	Ala	Phe	His	Val	Gln	Leu	His	Asn	Gly	Asn	Leu	Gly				
145					150					155					160				
Gly	Leu	Leu	Ser	Gly	Leu	Gln	Ser	Gly	Leu	Val	Met	Val	Ser	Gly	Phe				
165					170					175									
Ile	Gly	Leu	Ile	Gly	Thr	Arg	Ile	Ile	Ser	Phe	Phe	Thr	Ser	Lys	Arg				
180					185					190									
Leu	Asn	Val	Pro	Gln	Ile	Pro	Ser	Pro	Lys	Trp	Val	Ala	Gln	Ala	Ser				
195					200					205									
Leu	Trp	Leu	Pro	Met	Leu	Thr	Ala	Met	Leu	Met	Ala	His	Gly	Val	Leu				
210					215					220									
Ala	Trp	Leu	Ser	Ala	Val	Phe	Ala	Phe	Ala	Ala	Gly	Val	Ile	Phe	Thr				
225					230					235					240				
Val	Gln	Val	Tyr	Arg	Trp	Trp	Tyr	Lys	Pro	Val	Leu	Lys	Glu	Pro	Met				
245					250					255									
Leu	Trp	Ile	Leu	Phe	Ala	Gly	Tyr	Leu	Phe	Thr	Gly	Leu	Gly	Leu	Ile				
260					265					270									
Ala	Val	Gly	Ala	Ser	Tyr	Phe	Lys	Pro	Ala	Phe	Leu	Asn	Leu	Gly	Val				
275					280					285									
His	Leu	Ile	Gly	Val	Gly	Gly	Ile	Gly	Val	Leu	Thr	Leu	Gly	Met	Met				
290					295					300									
Ala	Arg	Thr	Ala	Leu	Gly	His	Thr	Gly	Asn	Pro	Ile	Tyr	Pro	Pro	Pro				
305					310					315					320				
Lys	Ala	Val	Pro	Val	Ala	Phe	Trp	Leu	Met	Met	Ala	Ala	Thr	Ala	Val				
325					330					335									

Arg Met Val Ala Val Phe Ser Ser Gly Thr Ala Tyr Thr His Ser Ile
 340 345 350

Arg Thr Ser Ser Val Leu Phe Ala Leu Ala Leu Leu Val Tyr Ala Trp
 355 360 365

Lys Tyr Ile Pro Trp Leu Ile Arg Pro Arg Ser Asp Gly Arg Pro Gly
 370 375 380

<210> 709
 <211> 1155
 <212> DNA
 <213> Neisseria meningitidis

<400> 709
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 gctctgtacg gcgcattgtc cgtattgctg tgggggtttcg gctacacggg aacgcacgag 120
 ctgtccgggt tctattggca cgcgcattgag atgatttggg gttatgccgg actggtcgtc 180
 atcgcccttc tgctgaccgc cgtcgccact tggacggggc agccgcccac gcggggcggc 240
 gttctgggtcg gcttgactat cttttgggctg gctgcgcgga ttgccgcctt tatcccggtt 300
 tgggggtgcgt cggaagcggg catactcggg acgctgtttt tctggtacgg cgcggtgtgc 360
 atggctttgc ccgttatccg ttcgcagaat caacgcaatt atgttgccgt gttcgcgctg 420
 ttcgtcttgg gcggtacgca cgcggcggtc cacgtccagc tgcacaacgg caacctaggc 480
 ggactcttga gcggtattgca gtcgggcttg gtgatgggtg cgggttttat cggctctgatt 540
 ggtacgcgga ttatttcggt ttttacgtcc aaacggttga atgtgccgca gattcccagt 600
 ccgaaatggg tggcgcaggc ttcgctgtgg ctgcccattg tgaccgccat gctgatggcg 660
 cacggcgtga tgccttggct gtcggcggct ttcgcgtttg cggcaggtgt gatttttacc 720
 gtgcaggtgt accgctgggt gtataagcct gtgttgaaag agccgatgct gtggattctg 780
 tttgccggct atctgtttac cggattgggg ctgattgcgg tcggcgcgtc ttatttcaaa 840
 cccgctttcc tcaatctggg tgtgcatctg atcggggctg gcggtatcgg cgtgctgact 900
 ttgggcatga tggcgcgtac cgcgctcggg catacgggca atccgattta tccgccgccc 960
 aaagccgttc ccgttgcgtt ttggctgatg atggcggcaa ccgccgtccg tatggttgcc 1020
 gtattttctt ccggcactgc ctacacgcac agcatacga cctcttcggt tttggttgca 1080
 ctcgcgcttt tgggtgatgc gtggaagtat attccttggc tgattcgtcc gcgttcggac 1140
 ggcaggcccc gttga 1155

<210> 710
 <211> 384
 <212> PRT
 <213> Neisseria meningitidis

<400> 710
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 1 5 10 15
 Tyr Ser Leu Ala Ala Leu Tyr Gly Ala Leu Ser Val Leu Leu Trp Gly
 20 25 30
 Phe Gly Tyr Thr Gly Thr His Glu Leu Ser Gly Phe Tyr Trp His Ala
 35 40 45
 His Glu Met Ile Trp Gly Tyr Ala Gly Leu Val Val Ile Ala Phe Leu
 50 55 60
 Leu Thr Ala Val Ala Thr Trp Thr Gly Gln Pro Pro Thr Arg Gly Gly
 65 70 75 80

Val Leu Val Gly Leu Thr Ile Phe Trp Leu Ala Ala Arg Ile Ala Ala
 85 90 95
 Phe Ile Pro Gly Trp Gly Ala Ser Ala Ser Gly Ile Leu Gly Thr Leu
 100 105 110
 Phe Phe Trp Tyr Gly Ala Val Cys Met Ala Leu Pro Val Ile Arg Ser
 115 120 125
 Gln Asn Gln Arg Asn Tyr Val Ala Val Phe Ala Leu Phe Val Leu Gly
 130 135 140
 Gly Thr His Ala Ala Phe His Val Gln Leu His Asn Gly Asn Leu Gly
 145 150 155 160
 Gly Leu Leu Ser Gly Leu Gln Ser Gly Leu Val Met Val Ser Gly Phe
 165 170 175
 Ile Gly Leu Ile Gly Thr Arg Ile Ile Ser Phe Phe Thr Ser Lys Arg
 180 185 190
 Leu Asn Val Pro Gln Ile Pro Ser Pro Lys Trp Val Ala Gln Ala Ser
 195 200 205
 Leu Trp Leu Pro Met Leu Thr Ala Met Leu Met Ala His Gly Val Met
 210 215 220
 Pro Trp Leu Ser Ala Ala Phe Ala Phe Ala Ala Gly Val Ile Phe Thr
 225 230 235 240
 Val Gln Val Tyr Arg Trp Trp Tyr Lys Pro Val Leu Lys Glu Pro Met
 245 250 255
 Leu Trp Ile Leu Phe Ala Gly Tyr Leu Phe Thr Gly Leu Gly Leu Ile
 260 265 270
 Ala Val Gly Ala Ser Tyr Phe Lys Pro Ala Phe Leu Asn Leu Gly Val
 275 280 285
 His Leu Ile Gly Val Gly Gly Ile Gly Val Leu Thr Leu Gly Met Met
 290 295 300
 Ala Arg Thr Ala Leu Gly His Thr Gly Asn Pro Ile Tyr Pro Pro Pro
 305 310 315 320
 Lys Ala Val Pro Val Ala Phe Trp Leu Met Met Ala Ala Thr Ala Val
 325 330 335
 Arg Met Val Ala Val Phe Ser Ser Gly Thr Ala Tyr Thr His Ser Ile
 340 345 350
 Arg Thr Ser Ser Val Leu Phe Ala Leu Ala Leu Leu Val Tyr Ala Trp
 355 360 365
 Lys Tyr Ile Pro Trp Leu Ile Arg Pro Arg Ser Asp Gly Arg Pro Gly
 370 375 380

<210> 711
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N = Unknown

<400> 711
 nnnnnnnn

8

<210> 712
 <211> 271
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 712
 Met Lys Phe Thr Lys His Pro Val Trp Ala Met Ala Phe Arg Pro Phe
 1 5 10 15
 Tyr Ser Leu Ala Ala Leu Tyr Gly Ala Leu Ser Val Leu Leu Trp Gly
 20 25 30
 Phe Gly Tyr Thr Gly Thr His Glu Leu Ser Gly Phe Tyr Trp His Ala
 35 40 45
 His Glu Met Ile Trp Gly Tyr Ala Gly Leu Val Val Ile Ala Phe Leu
 50 55 60
 Leu Thr Ala Val Ala Thr Trp Thr Gly Gln Pro Pro Thr Arg Gly Gly
 65 70 75 80
 Val Leu Val Gly Leu Thr Ala Phe Trp Leu Ala Ala Arg Ile Ala Ala
 85 90 95
 Phe Ile Pro Gly Trp Gly Ala Ala Ala Ser Gly Ile Leu Gly Thr Leu
 100 105 110
 Phe Phe Trp Tyr Gly Ala Val Cys Met Ala Leu Pro Val Ile Arg Ser
 115 120 125
 Gln Asn Arg Arg Asn Tyr Val Ala Val Phe Ala Ile Phe Val Leu Gly
 130 135 140
 Gly Thr His Ala Ala Phe His Val Gln Leu His Asn Gly Asn Leu Gly
 145 150 155 160
 Gly Leu Leu Ser Gly Leu Gln Ser Gly Leu Val Met Val Trp Gly Phe
 165 170 175
 Ile Gly Leu Ile Gly Met Lys Ile Ile Ser Phe Phe Thr Ser Lys Arg
 180 185 190

Leu Lys Leu Pro Gln Ile Pro Ser Pro Lys Trp Val Ala His Ala Ser

195

200

205

Leu Trp Leu Pro Met Leu Asn Ala Ile Leu Met Ala His Arg Val Met
210 215 220

Pro Trp Leu Ser Ala Ala Phe Pro Phe Ala Ala Gly Val Ile Phe Thr
225 230 235 240

Val Gln Val Tyr Ala Gly Gly Ile Thr Pro Ile Glu Glu Thr Ser Cys
245 250 255

Gly Ser Val Ala Gly Ile Cys Tyr Arg Leu Gly Asn Ser Ser Gly
260 265 270

<210> 713

<211> 1155

<212> DNA

<213> Neisseria gonorrhoeae

<400> 713

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gcaactgtacg	gcgcatgtc	cgtattgctg	tggggtttcg	gctacacggg	aacgcacgag	120
ctgtccggtt	tctattggca	cgcgcagtag	atgatttggg	gttatgccgg	tctcgtcgtc	180
atcgcccttc	tgtgaccgc	cgtcgccact	tggacgggac	agccgcccac	gaggggcggc	240
gttctggtcg	gcttgaccgc	cttttggtcg	gctgcgcgga	ttgccgcctt	tatcccgggt	300
tgggggtgcg	cggcaagcgg	catactcggt	acgctgtttt	tctggtacgg	cgcggtgtgc	360
atggctttgc	ccgttatccg	ttcgcaaaac	cggcgcaact	atgtcgccgt	attcgcaata	420
tttgtgctgg	gcggtacgca	tgcggcgctt	cacgtccagc	tgcaaacagg	caacctaggc	480
ggactcttga	gcggtattga	gtcgggcctg	gttatggtgt	cgggctttat	cggcctgatt	540
gggatgagga	ttatttcggt	ttttacgtcc	aaacggttga	acgtgccgca	gattcccagt	600
ccgaaatggg	tggcgcaggc	ttcgctgtgg	ctacccatgc	tgaccgccat	actgatggcg	660
cacggcgtga	tgccttggct	gtcggcggct	ttcgcgtttg	cggcgggcgt	gatttttacc	720
gttacaggtgt	accgctgggt	gtataaaccc	gtattgaaag	aaccgatgct	gtggattctg	780
tttgccggct	atctgtttac	cggattgggg	ctgattgcgg	tcggcgcgtc	ttatttcaaa	840
cctgccttcc	tcaatctggg	cgtacatctg	atcggggctg	gcggtatcgg	cgtgctgact	900
ttgggcatga	tggcgcgtac	cgcgctcggt	catacgggca	attcgattta	tccgccgccc	960
aaagccgttc	ccgttgcggt	ttggctgatg	atggcggcaa	ccgccgtccg	tatgggtgcc	1020
gtattttctt	ccggcaactgc	ctacacgcac	agcatccgca	cgtcttcggt	tttgtttgca	1080
ctcgcgctgc	tgggtgatgc	gtggaaatac	attccgtggc	tgatccgtcc	gcgttcggac	1140
ggcaggcccc	gttga					1155

<210> 714

<211> 384

<212> PRT

<213> Neisseria gonorrhoeae

<400> 714

Met Lys Phe Thr Lys His Pro Val Trp Ala Met Ala Phe Arg Pro Phe
1 5 10 15

Tyr Ser Leu Ala Ala Leu Tyr Gly Ala Leu Ser Val Leu Leu Trp Gly
20 25 30

Phe Gly Tyr Thr Gly Thr His Glu Leu Ser Gly Phe Tyr Trp His Ala

35

40

45

His Glu Met Ile Trp Gly Tyr Ala Gly Leu Val Val Ile Ala Phe Leu
 50 55 60
 Leu Thr Ala Val Ala Thr Trp Thr Gly Gln Pro Pro Thr Arg Gly Gly
 65 70 75 80
 Val Leu Val Gly Leu Thr Ala Phe Trp Leu Ala Ala Arg Ile Ala Ala
 85 90 95
 Phe Ile Pro Gly Trp Gly Ala Ala Ala Ser Gly Ile Leu Gly Thr Leu
 100 105 110
 Phe Phe Trp Tyr Gly Ala Val Cys Met Ala Leu Pro Val Ile Arg Ser
 115 120 125
 Gln Asn Arg Arg Asn Tyr Val Ala Val Phe Ala Ile Phe Val Leu Gly
 130 135 140
 Gly Thr His Ala Ala Phe His Val Gln Leu His Asn Gly Asn Leu Gly
 145 150 155 160
 Gly Leu Leu Ser Gly Leu Gln Ser Gly Leu Val Met Val Ser Gly Phe
 165 170 175
 Ile Gly Leu Ile Gly Met Arg Ile Ile Ser Phe Phe Thr Ser Lys Arg
 180 185 190
 Leu Asn Val Pro Gln Ile Pro Ser Pro Lys Trp Val Ala Gln Ala Ser
 195 200 205
 Leu Trp Leu Pro Met Leu Thr Ala Ile Leu Met Ala His Gly Val Met
 210 215 220
 Pro Trp Leu Ser Ala Ala Phe Ala Phe Ala Ala Gly Val Ile Phe Thr
 225 230 235 240
 Val Gln Val Tyr Arg Trp Trp Tyr Lys Pro Val Leu Lys Glu Pro Met
 245 250 255
 Leu Trp Ile Leu Phe Ala Gly Tyr Leu Phe Thr Gly Leu Gly Leu Ile
 260 265 270
 Ala Val Gly Ala Ser Tyr Phe Lys Pro Ala Phe Leu Asn Leu Gly Val
 275 280 285
 His Leu Ile Gly Val Gly Gly Ile Gly Val Leu Thr Leu Gly Met Met
 290 295 300
 Ala Arg Thr Ala Leu Gly His Thr Gly Asn Ser Ile Tyr Pro Pro Pro
 305 310 315 320
 Lys Ala Val Pro Val Ala Phe Trp Leu Met Met Ala Ala Thr Ala Val
 325 330 335

Arg Met Val Ala Val Phe Ser Ser Gly Thr Ala Tyr Thr His Ser Ile
340 345 350

Arg Thr Ser Ser Val Leu Phe Ala Leu Ala Leu Leu Val Tyr Ala Trp
355 360 365

Lys Tyr Ile Pro Trp Leu Ile Arg Pro Arg Ser Asp Gly Arg Pro Gly
370 375 380

<210> 715
<211> 570
<212> DNA
<213> Neisseria meningitidis

<400> 715
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caatgagact tcgtgggttt tgaagcgggt gttttccaag cgtccccagt tgtggtaacg 120
gtatccgggtg tcyaargtca gcttgggygt gatgtcgaaa ccgacaccgg cgatgacacc 180
aagaccyame ctgctgatrc tgtkgttttc gtgataggga ggtttgytgg kmksasyttg 240
tayratwkkg cctsscwtg kagmgccktk ckytggtkka swgrwartag tcgtgggtty 300
tktttycacc gaatgaacyt gatgtttaac gtgtccgtag gcgacgcgcg cgccgatata 360
gggtttgaat ttatcgttga gtttgaaatc gtaaattggcg gacaagccga gagaagaaac 420
ggcgtggaag ctgccgtttc cctgatgttt tgtttgggtt tctttgtagt tgttgtttat 480
ctcttcagta acttttttag tagaagaatt actttctttc cattttctgt aactggcata 540
atctgccgct attctccagc cgccgaaatc 570

<210> 716
<211> 190
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (9)..(9)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (11)..(11)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (14)..(14)
<223> Xaa= any amino acid

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<222> (16)..(16)
<223> Xaa= any amino acid

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<222> (22)..(22)
<223> Xaa= any amino acid

<220>
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<222> (45)..(46)

<223> Xaa= any amino acid

<220>
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<222> (50)..(50)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (63)..(63)
<223> Xaa= any amino acid

<220>
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<222> (67)..(67)
<223> Xaa= any amino acid

<220>
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<222> (76)..(76)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (78)..(79)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (82)..(83)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (85)..(88)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (90)..(91)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (93)..(96)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (101)..(102)
<223> Xaa= any amino acid

<400> 716

Met Pro Ser Glu Gly Ser Asp Gly Xaa Gly Xaa Gly Glu Xaa Glu Xaa
1 5 10 15

Val Ala His Ala Gln Xaa Asp Phe Val Gly Phe Glu Ala Gly Val Phe
20 25 30

Gln Ala Ser Pro Val Val Val Thr Val Ser Gly Val Xaa Xaa Gln Leu
35 40 45

Gly Xaa Asp Val Glu Thr Asp Thr Gly Asp Asp Thr Lys Thr Xaa Ala
50 55 60

Ala Asp Xaa Val Ala Phe Val Ile Gly Arg Phe Xaa Gly Xaa Xaa Leu
65 70 75 80

Tyr Xaa Xaa Ala Xaa Xaa Xaa Xaa Ala Xaa Xaa Trp Xaa Xaa Xaa Xaa
85 90 95

Ser Arg Gly Phe Xaa Xaa His Arg Met Asn Leu Met Phe Asn Val Ser
100 105 110

Val Gly Asp Ala Arg Ala Asp Ile Gly Phe Glu Phe Ile Val Glu Phe
115 120 125

Glu Ile Val Asn Gly Gly Gln Ala Glu Arg Arg Asn Gly Val Glu Ala
130 135 140

Ala Val Ser Leu Met Phe Cys Leu Gly Phe Phe Val Val Val Val Tyr
145 150 155 160

Leu Phe Ser Asn Phe Phe Ser Arg Arg Ile Thr Phe Phe Pro Phe Ser
165 170 175

Val Thr Gly Ile Ile Cys Arg Tyr Ser Pro Ala Ala Glu Ile
180 185 190

<210> 717

<211> 8

<212> DNA

<213> *Neisseria gonorrhoeae*

<220>

<221> misc_feature

<222> (1)..(8)

<223> N = Unknown

<400> 717

nnnnnnnn

8

<210> 718

<211> 360

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 718

Met Pro Ser Glu Thr Val Gly Ser Ile Val Asn Val Gly Val Asp Glu
1 5 10 15

Ser Val Gly Phe Ser Pro Pro Phe Pro Ser Ile Gln His Phe Tyr Arg

20

25

30

Phe His Arg Ile His Arg Ile Arg Leu Phe Arg Pro Pro Gly Pro Met
35 40 45

Gln Leu Asn Arg His Ser His Gly Ser Gly Asn Leu Gly Arg Gly Val
50 55 60

Trp Ala Thr Val Leu Ser Asp Lys Phe Pro Cys Gly Gln Val Arg Ile
65 70 75 80

Pro Ala Cys Ala Gly Met Thr Asn Phe Glu Ile Ala Val Leu Ser Gly
85 90 95

Met Thr Val Arg Val Phe Tyr Cys Ala Arg Pro Ala Pro Val Asn Gly
100 105 110

Gly Arg Leu Lys Met Pro Ser Glu Gly Ser Asp Gly Ile Gly Ile Gly
115 120 125

Glu Ser Glu Ala Val Ala His Ala Gln Arg Gly Phe Val Gly Phe Glu
130 135 140

Ala Gly Val Phe Gln Ala Ser Pro Val Val Val Ala Val Ala Gly Val
145 150 155 160

Gln Gly Gln Ala Gly Arg Asp Val Tyr Ala His Ala Arg His Arg Ala
165 170 175

Glu Ala Gln Ala Ala Ala Val Ala Phe Leu Ile Gly Val Phe Leu
180 185 190

Arg Met Ser Val Arg Ile Asn Arg Asn Cys Cys Val Ser Ile Thr Arg
195 200 205

Val Gly Gly Lys Ser Thr Cys Tyr Phe Phe Ser Arg Ile Asp Ala Val
210 215 220

Ser Asp Val Ser Val Gly Asp Ala Arg Thr Asp Ile Gly Phe Glu Phe
225 230 235 240

Val Val Glu Phe Glu Ile Val Asn Gly Gly Gln Ala Glu Arg Arg Asn
245 250 255

Gly Val Glu Cys Ala Val Phe Leu Met Phe Arg Leu Leu Val Phe Tyr
260 265 270

Val Lys Leu Val Ala Ala Lys Ser Phe Ile Ile Leu Ser Phe Gln Leu
275 280 285

Phe Tyr Val His Gly Ile Phe Ile Val Val Pro Phe Pro Val Thr Gly
 290 295 300

Ile Ile Arg Gly Asp Ala Pro Ala Ala Glu Val Val Ala Asp Arg His
 305 310 315 320

Pro Gly Val Asp Gly Met Arg Thr Asp Val Ser Glu Ile Ile Ala Tyr
 325 330 335

Arg Ala Tyr Phe Val Phe Ala Trp Ser Gly Trp Phe Arg Ile Ile Val
 340 345 350

Gly Asn Ala Phe Gly Gly Val Gly
 355 360

<210> 719
 <211> 435
 <212> DNA
 <213> Neisseria meningitidis

<400> 719
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 ttggtcatct gcggtttcgg cgtgccgatt cccgaggatt tgaccttggg aacaggcggc 120
 gtgatttcgg gtatgggtta taccaatccg catattatgt ttgcagtcgg tatgctcggc 180
 gtattggctc gggacggcat catgttcgcc gccggacgaa tttgggggca garartccta 240
 rggttcarac ctattgcgsg catcatgacg ccgraacggt atgagcaggt tcaggaaaaa 300
 ttcgacaaat acggttaactg ggtcttattt gtcgcccgtt tcctgcccgg tttgagaacg 360
 gccgtatttg ttacagccgg tatcagccgc aagggttcat acttgcggtt tatcattatg 420
 gatggactgg ccgca 435

<210> 720
 <211> 145
 <212> PRT
 <213> Neisseria meningitidis

<220>
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 <222> (78)..(79)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (81)..(81)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (83)..(83)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (87)..(87)
 <223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (92)..(92)

<223> Xaa= any amino acid

<400> 720

Met Phe Ala Phe Leu Glu Ala Phe Phe Val Glu Tyr Gly Tyr Ala Ala

1

5

10

15

Val Phe Phe Val Leu Val Ile Cys Gly Phe Gly Val Pro Ile Pro Glu
20 25 30

Asp Leu Thr Leu Val Thr Gly Gly Val Ile Ser Gly Met Gly Tyr Thr
35 40 45

Asn Pro His Ile Met Phe Ala Val Gly Met Leu Gly Val Leu Val Gly
50 55 60

Asp Gly Ile Met Phe Ala Ala Gly Arg Ile Trp Gly Gln Xaa Xaa Leu
65 70 75 80

Xaa Phe Xaa Pro Ile Ala Xaa Ile Met Thr Pro Xaa Arg Tyr Glu Gln
85 90 95

Val Gln Glu Lys Phe Asp Lys Tyr Gly Asn Trp Val Leu Phe Val Ala
100 105 110

Arg Phe Leu Pro Gly Leu Arg Thr Ala Val Phe Val Thr Ala Gly Ile
115 120 125

Ser Arg Lys Val Ser Tyr Leu Arg Phe Ile Ile Met Asp Gly Leu Ala
130 135 140

Ala

145

<210> 721

<211> 684

<212> PRT

<213> Neisseria meningitidis

<400> 721

Ala Thr Gly Thr Thr Thr Gly Cys Thr Thr Thr Thr Thr Thr Ala Gly
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Ala Ala Gly Cys Cys Thr Thr Thr Thr Thr Thr Gly Thr Cys Gly Ala
20 25 30

Ala Thr Ala Cys Gly Gly Thr Thr Ala Thr Gly Cys Gly Gly Cys Thr
35 40 45

Gly Thr Thr Thr Thr Thr Thr Thr Thr Thr Gly Thr Ala Thr Thr Gly Gly
50 55 60

Thr Cys Ala Thr Cys Thr Gly Cys Gly Gly Thr Thr Thr Cys Gly Gly
 65 70 75 80
 Cys Gly Thr Gly Cys Cys Gly Ala Thr Thr Cys Cys Cys Gly Ala Gly
 85 90 95
 Gly Ala Thr Thr Thr Gly Ala Cys Cys Thr Thr Gly Gly Thr Ala Ala
 100 105 110
 Cys Ala Gly Gly Cys Gly Gly Cys Gly Thr Gly Ala Thr Thr Thr Cys
 115 120 125
 Gly Gly Gly Thr Ala Thr Gly Gly Gly Thr Thr Ala Thr Ala Cys Cys
 130 135 140
 Ala Ala Thr Cys Cys Gly Cys Ala Thr Ala Thr Thr Ala Thr Gly Thr
 145 150 155 160
 Thr Thr Gly Cys Ala Gly Thr Cys Gly Gly Thr Ala Thr Gly Cys Thr
 165 170 175
 Cys Gly Gly Cys Gly Thr Ala Thr Thr Gly Gly Thr Cys Gly Gly Gly
 180 185 190
 Gly Ala Cys Gly Gly Cys Ala Thr Cys Ala Thr Gly Thr Thr Cys Gly
 195 200 205
 Cys Cys Gly Cys Cys Gly Gly Ala Cys Gly Ala Ala Thr Thr Thr Gly
 210 215 220
 Gly Gly Gly Gly Cys Ala Gly Ala Ala Ala Thr Cys Cys Thr Ala
 225 230 235 240
 Ala Gly Gly Thr Thr Cys Ala Ala Ala Cys Cys Thr Ala Thr Thr Gly
 245 250 255
 Cys Gly Cys Gly Cys Ala Thr Cys Ala Thr Gly Ala Cys Gly Cys Cys
 260 265 270
 Gly Ala Ala Ala Cys Gly Thr Thr Ala Thr Gly Ala Gly Cys Ala Gly
 275 280 285
 Gly Thr Thr Cys Ala Gly Gly Ala Ala Ala Ala Thr Thr Cys Gly
 290 295 300
 Ala Cys Ala Ala Ala Thr Ala Cys Gly Gly Thr Ala Ala Cys Thr Gly
 305 310 315 320
 Gly Gly Thr Cys Thr Thr Ala Thr Thr Thr Gly Thr Cys Gly Cys Cys
 325 330 335
 Cys Gly Thr Thr Thr Cys Cys Thr Gly Cys Cys Cys Gly Gly Thr Thr
 340 345 350
 Thr Gly Ala Gly Ala Ala Cys Gly Gly Cys Cys Gly Thr Ala Thr Thr

355	360	365
Thr Gly Thr Thr Ala Cys Ala Gly Cys Cys Gly Gly Thr Ala Thr Cys		
370	375	380
Ala Gly Cys Cys Gly Cys Ala Ala Gly Gly Thr Thr Thr Cys Ala Thr		
385	390	395 400
Ala Cys Thr Thr Gly Cys Gly Thr Thr Thr Thr Ala Thr Cys Ala Thr		
	405	410 415
Thr Ala Thr Gly Gly Ala Thr Gly Gly Ala Cys Thr Gly Gly Cys Cys		
	420	425 430
Gly Cys Ala Cys Thr Gly Ala Thr Thr Thr Cys Cys Gly Thr Cys Cys		
	435	440 445
Cys Thr Ala Thr Thr Thr Gly Gly Ala Thr Thr Thr Ala Thr Cys Thr		
	450	455 460
Gly Gly Gly Cys Gly Ala Ala Thr Ala Cys Gly Gly Thr Gly Cys Gly		
465	470	475 480
Cys Ala Cys Ala Ala Cys Ala Thr Cys Gly Ala Thr Thr Gly Gly Cys		
	485	490 495
Thr Gly Ala Thr Gly Gly Cys Gly Ala Ala Ala Ala Thr Gly Cys Ala		
	500	505 510
Cys Ala Gly Cys Cys Thr Gly Cys Ala Ala Thr Cys Gly Gly Gly Thr		
	515	520 525
Ala Thr Thr Thr Thr Thr Gly Thr Thr Ala Thr Cys Thr Thr Gly Gly		
	530	535 540
Gly Thr Ala Thr Ala Gly Gly Thr Gly Cys Gly Ala Cys Cys Gly Thr		
545	550	555 560
Thr Gly Thr Cys Gly Cys Thr Thr Gly Gly Ala Thr Thr Thr Gly Gly		
	565	570 575
Thr Gly Gly Ala Ala Ala Ala Ala Ala Cys Gly Cys Cys Ala Ala Cys		
	580	585 590
Gly Thr Ala Thr Cys Cys Ala Gly Thr Thr Thr Thr Ala Cys Cys Gly		
	595	600 605
Cys Ala Gly Cys Ala Ala Ala Thr Thr Gly Ala Ala Ala Gly Ala Ala		
	610	615 620
Ala Ala Gly Cys Gly Gly Gly Cys Gly Cys Ala Ala Cys Gly Cys Ala		
625	630	635 640
Ala Ala Gly Cys Cys Gly Cys Cys Ala Ala Gly Gly Cys Ala Gly Cys		
	645	650 655

Cys Ala Ala Ala Ala Ala Ala Gly Cys Cys Gly Cys Gly Cys Ala Ala
660 665 670

Ala Gly Cys Ala Ala Ala Cys Ala Ala Thr Ala Ala
675 680

<210> 722
<211> 227
<212> PRT
<213> Neisseria meningitidis

<400> 722
Met Phe Ala Phe Leu Glu Ala Phe Phe Val Glu Tyr Gly Tyr Ala Ala
1 5 10 15

Val Phe Phe Val Leu Val Ile Cys Gly Phe Gly Val Pro Ile Pro Glu
20 25 30

Asp Leu Thr Leu Val Thr Gly Gly Val Ile Ser Gly Met Gly Tyr Thr
35 40 45

Asn Pro His Ile Met Phe Ala Val Gly Met Leu Gly Val Leu Val Gly
50 55 60

Asp Gly Ile Met Phe Ala Ala Gly Arg Ile Trp Gly Gln Lys Ile Leu
65 70 75 80

Arg Phe Lys Pro Ile Ala Arg Ile Met Thr Pro Lys Arg Tyr Glu Gln
85 90 95

Val Gln Glu Lys Phe Asp Lys Tyr Gly Asn Trp Val Leu Phe Val Ala
100 105 110

Arg Phe Leu Pro Gly Leu Arg Thr Ala Val Phe Val Thr Ala Gly Ile
115 120 125

Ser Arg Lys Val Ser Tyr Leu Arg Phe Ile Ile Met Asp Gly Leu Ala
130 135 140

Ala Leu Ile Ser Val Pro Ile Trp Ile Tyr Leu Gly Glu Tyr Gly Ala
145 150 155 160

His Asn Ile Asp Trp Leu Met Ala Lys Met His Ser Leu Gln Ser Gly
165 170 175

Ile Phe Val Ile Leu Gly Ile Gly Ala Thr Val Val Ala Trp Ile Trp
180 185 190

Trp Lys Lys Arg Gln Arg Ile Gln Phe Tyr Arg Ser Lys Leu Lys Glu
195 200 205

Lys Arg Ala Gln Arg Lys Ala Ala Lys Ala Ala Lys Lys Ala Ala Gln
210 215 220

Ser Lys Gln

225

<210> 723
 <211> 684
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 723
 atgtttgccc ttttgggaagc cttttttgtc gaatacggct atgcggccgt gtttttcggt 60
 ttggtcatct gcggtttcgg cgtgccgatt cccgaggatt tgaccttggg aacaggcggc 120
 gtgatttcgg gtatgggtta taccaatccg catattatgt ttgcagtcgg tatgctcggc 180
 gtattggtcg gggacggcat catgttcgcc gccggacgca tctgggggca gaaaatcctc 240

aagttcaaac cgattgcgcg catcatgacg ccgaaacggt acgcacaggt tcaggaaaaa 300
 ttcgacaaat acggcaactg ggtgttattt gtcgctcggt tcctgcccgg tttgcggact 360
 gccgttttcg ttaccgccgg catcagccgc aaagtatcgt atctgcgctt tctgattatg 420
 gacgggcttg ccgcgctgat ttccgtgccg gtttggattt acttggggcg gtacggcgcg 480
 cacaacatcg attggctgat ggcgaaaatg cacagcctgc aatccggcat cttcatcgca 540
 ttgggcgtgc tggcggcggc gctggcgctgg ttctgggtgg gcaaacgccc acattatcag 600
 cttaccgcg cacaattgag cgaaaaacgc gccaaacgca aggcggaaaa ggcagcgaaa 660
 aaagcggcac agaagcagca gtaa 684

<210> 724
 <211> 227
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 724
 Met Phe Ala Leu Leu Glu Ala Phe Phe Val Glu Tyr Gly Tyr Ala Ala
 1 5 10 15
 Val Phe Phe Val Leu Val Ile Cys Gly Phe Gly Val Pro Ile Pro Glu
 20 25 30
 Asp Leu Thr Leu Val Thr Gly Gly Val Ile Ser Gly Met Gly Tyr Thr
 35 40 45
 Asn Pro His Ile Met Phe Ala Val Gly Met Leu Gly Val Leu Val Gly
 50 55 60
 Asp Gly Ile Met Phe Ala Ala Gly Arg Ile Trp Gly Gln Lys Ile Leu
 65 70 75 80
 Lys Phe Lys Pro Ile Ala Arg Ile Met Thr Pro Lys Arg Tyr Ala Gln
 85 90 95
 Val Gln Glu Lys Phe Asp Lys Tyr Gly Asn Trp Val Leu Phe Val Ala
 100 105 110
 Arg Phe Leu Pro Gly Leu Arg Thr Ala Val Phe Val Thr Ala Gly Ile
 115 120 125
 Ser Arg Lys Val Ser Tyr Leu Arg Phe Leu Ile Met Asp Gly Leu Ala
 130 135 140
 Ala Leu Ile Ser Val Pro Val Trp Ile Tyr Leu Gly Glu Tyr Gly Ala

145	150	155	160
His Asn Ile Asp Trp Leu Met Ala Lys Met His Ser Leu Gln Ser Gly			
165	170	175	
Ile Phe Ile Ala Leu Gly Val Leu Ala Ala Ala Leu Ala Trp Phe Trp			
180	185	190	
Trp Arg Lys Arg Arg His Tyr Gln Leu Tyr Arg Ala Gln Leu Ser Glu			
195	200	205	
Lys Arg Ala Lys Arg Lys Ala Glu Lys Ala Ala Lys Lys Ala Ala Gln			
210	215	220	

Lys Gln Gln
225

<210> 725
<211> 8
<212> DNA
<213> Neisseria gonorrhoeae

<220>
<221> misc_feature
<222> (1)..(8)
<223> N = Unknown

<400> 725
nnnnnnnn

8

<210> 726
<211> 122
<212> PRT
<213> Neisseria gonorrhoeae

<400> 726
Tyr Pro Val Leu Phe Val Ala Arg Phe Leu Pro Gly Leu Arg Thr Ala
1 5 10 15
Val Phe Val Thr Ala Gly Ile Ser Arg Lys Val Ser Tyr Leu Arg Phe
20 25 30
Leu Ile Met Asp Gly Leu Ala Ala Leu Ile Ser Val Pro Val Trp Ile
35 40 45
Tyr Leu Gly Glu Tyr Gly Ala His Asn Ile Asp Trp Leu Met Ala Lys
50 55 60
Met His Ser Leu Gln Ser Gly Ile Phe Ile Ala Leu Gly Val Leu Ala
65 70 75 80
Ala Ala Leu Ala Trp Phe Trp Trp Arg Lys Arg Arg His Tyr Gln Leu
85 90 95
Tyr Arg Ala Gln Leu Ser Glu Lys Arg Ala Lys Arg Lys Ala Glu Lys
100 105 110

Ala Ala Lys Lys Ala Ala Gln Lys Gln Gln
 115 120

<210> 727
 <211> 684
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 727
 atgtttgccc ttttgaagc cttttttgtc gaatacggct atgcggccgt gtttttcggt 60
 ttggtcatct gcggtttcgg cgtgccgatt cccgaagatt tgaccttggg aacgggcggc 120
 gtgatttcgg gtatgggtta taccaatccg catattatgt ttgcggtcgg tatgctcggc 180
 gtgttgccgg gcgacggcgt gatgtttgcc gccggacgca tctgggggca gaaaatcctc 240

aagttcaaac cgattgcgcg catcatgacg ccgaaacggt acgcgcaggt tcaggaaaaa 300
 ttcgaacaaat acggcaactg ggttctgttt gtcgcccggt tcctgccggg tttgcggact 360
 gccgttttcg ttaccgccgg catcagccgc aaagtatcgt atctgcgctt tctgattatg 420
 gacgggctgg ccgcgctgat ttccgtgccc gtttggattt acttgggcga gtacggcgcg 480
 cacaacatcg attggctgat ggcgaaaatg cacagcctgc aatcgggcat cttcatcgca 540
 ttgggcgtgc tggcgccggc gctggcgtgg ttctggtggc gcaaacgccg acattatcag 600
 ctttaccgcg cacaattgag cgaaaaacgc gccaaacgca aggcggaaaa ggcagcgaaa 660
 aaagcggcac agaagcagca gtaa 684

<210> 728
 <211> 227
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 728
 Met Phe Ala Leu Leu Glu Ala Phe Phe Val Glu Tyr Gly Tyr Ala Ala
 1 5 10 15
 Val Phe Phe Val Leu Val Ile Cys Gly Phe Gly Val Pro Ile Pro Glu
 20 25 30
 Asp Leu Thr Leu Val Thr Gly Gly Val Ile Ser Gly Met Gly Tyr Thr
 35 40 45
 Asn Pro His Ile Met Phe Ala Val Gly Met Leu Gly Val Leu Ala Gly
 50 55 60
 Asp Gly Val Met Phe Ala Ala Gly Arg Ile Trp Gly Gln Lys Ile Leu
 65 70 75 80
 Lys Phe Lys Pro Ile Ala Arg Ile Met Thr Pro Lys Arg Tyr Ala Gln
 85 90 95
 Val Gln Glu Lys Phe Asp Lys Tyr Gly Asn Trp Val Leu Phe Val Ala
 100 105 110
 Arg Phe Leu Pro Gly Leu Arg Thr Ala Val Phe Val Thr Ala Gly Ile
 115 120 125
 Ser Arg Lys Val Ser Tyr Leu Arg Phe Leu Ile Met Asp Gly Leu Ala
 130 135 140

Ala Leu Ile Ser Val Pro Val Trp Ile Tyr Leu Gly Glu Tyr Gly Ala
145 150 155 160

His Asn Ile Asp Trp Leu Met Ala Lys Met His Ser Leu Gln Ser Gly
165 170 175

Ile Phe Ile Ala Leu Gly Val Leu Ala Ala Ala Leu Ala Trp Phe Trp
180 185 190

Trp Arg Lys Arg Arg His Tyr Gln Leu Tyr Arg Ala Gln Leu Ser Glu
195 200 205

Lys Arg Ala Lys Arg Lys Ala Glu Lys Ala Ala Lys Lys Ala Ala Gln
210 215 220

Lys Gln Gln
225

<210> 729
<211> 441
<212> DNA
<213> Neisseria meningitidis

<400> 729
atgaaaaaat tattggcggc cgtgatgatg gcagggtttgg caggcgcggg ttccgcgcgc 60
ggagtccacg ttgaggacgg ctgggcgcgc accaccgtcg aaggatatgaa aataggcggc 120
gcgttcatga aaatccacaa cgacgaagcc aaacaagact ttttgctcgg cggaagcagc 180
ccggttgccg accgcgtcga agtgcatacc cacatcaacg acaacggcgt gatgcggatg 240
cgcgaagtgc aaggcggcgt gcctttggaa gcgaaatccg ttaccgaact caaaccggc 300
agctatcatg tgatgtttat gggtttgaaa aaacaattaa aagagggcga taaaattccc 360
gttaccctga aatttaaaaa cgccaaagcg caaacgctcc aactggaagt caaatcgcg 420
ccgatgcggg caatgaacca c 441

<210> 730
<211> 147
<212> PRT
<213> Neisseria meningitidis

<400> 730
Met Lys Lys Leu Leu Ala Ala Val Met Met Ala Gly Leu Ala Gly Ala
1 5 10 15

Val Ser Ala Ala Gly Val His Val Glu Asp Gly Trp Ala Arg Thr Thr
20 25 30

Val Glu Gly Met Lys Ile Gly Gly Ala Phe Met Lys Ile His Asn Asp
35 40 45

Glu Ala Lys Gln Asp Phe Leu Leu Gly Gly Ser Ser Pro Val Ala Asp
50 55 60

Arg Val Glu Val His Thr His Ile Asn Asp Asn Gly Val Met Arg Met
65 70 75 80

Arg Glu Val Glu Gly Gly Val Pro Leu Glu Ala Lys Ser Val Thr Glu

85 90 95

Leu Lys Pro Gly Ser Tyr His Val Met Phe Met Gly Leu Lys Lys Gln
100 105 110

Leu Lys Glu Gly Asp Lys Ile Pro Val Thr Leu Lys Phe Lys Asn Ala
115 120 125

Lys Ala Gln Thr Val Gln Leu Glu Val Lys Ile Ala Pro Met Pro Ala
130 135 140

Met Asn His
145

<210> 731
<211> 474

<212> DNA
<213> Neisseria meningitidis

<400> 731
atgaaaaaat tattggcggc cgtgatgatg gcaggtttgg caggcgcggt ttccgcgcgc 60
ggagtccacg ttgaggacgg ctgggcgcgc accaccgtcg aaggatatgaa aataggcggc 120
gcgttcatga aaatccacaa cgacgaagcc aaacaagact ttttgctcgg cggaagcagc 180
cccgttgccg accgcgtcga agtgcatacc cacatcaacg acaacggcgt gatgcggatg 240
cgcgaagtcg aaggcggcgt gcctttggaa gcgaaatccg ttaccgaact caaaccgcgc 300
agctatcatg tgatgtttat gggtttgaaa aaacaattaa aagagggcga taaaattccc 360
gttaccctga aatttaaaaa cgccaaagcg caaacgcgtc aactggaagt caaaatcgcg 420
ccgatgccgg caatgaacca cggtcatacc caggcgaag cgcatacaga ctaa 474

<210> 732
<211> 157
<212> PRT
<213> Neisseria meningitidis

<400> 732
Met Lys Lys Leu Leu Ala Ala Val Met Met Ala Gly Leu Ala Gly Ala
1 5 10 15
Val Ser Ala Ala Gly Val His Val Glu Asp Gly Trp Ala Arg Thr Thr
20 25 30
Val Glu Gly Met Lys Ile Gly Gly Ala Phe Met Lys Ile His Asn Asp
35 40 45
Glu Ala Lys Gln Asp Phe Leu Leu Gly Gly Ser Ser Pro Val Ala Asp
50 55 60
Arg Val Glu Val His Thr His Ile Asn Asp Asn Gly Val Met Arg Met
65 70 75 80
Arg Glu Val Glu Gly Gly Val Pro Leu Glu Ala Lys Ser Val Thr Glu
85 90 95
Leu Lys Pro Gly Ser Tyr His Val Met Phe Met Gly Leu Lys Lys Gln
100 105 110

Leu Lys Glu Gly Asp Lys Ile Pro Val Thr Leu Lys Phe Lys Asn Ala
 115 120 125

Lys Ala Gln Thr Val Gln Leu Glu Val Lys Ile Ala Pro Met Pro Ala
 130 135 140

Met Asn His Gly His His His Gly Glu Ala His Gln His
 145 150 155

<210> 733
 <211> 474
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> misc_feature

<222> (7)..(7)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (325)..(325)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (345)..(345)
 <223> N= Unknown

<400> 733
 atgaaanaac tattggcagc cgtgatgatg gcaggtttgg caggcgcggt ttccgccgcc 60
 ggaatccacg ttgaggacgg ctgggcgcgc accaccgtcg aaggatatgaa aatgggcggc 120
 gcgttcacga aaatccacaa cgacgaagcc aaacaagact ttttgctcgg cggaagcagc 180
 cctgttgccg accgcgtcga agtgcatacc catatcaatg ataacggtgt gatgcggatg 240
 cgcgaaagtcg aaggcggcgt gcctttggag gcgaaatccg ttaccgaact caaaccggc 300
 agctatcatg tcatgtttat gggtntgaaa aaacaattaa aaganggcga caagattccc 360
 gttaccctga aatttaaaaa cgccaaagca caaaccgtcc aactggaagt caaaaccgcg 420
 ccgatgtcgg caatggacca cggtcatacc cacggcgaag cgcatacaga ctaa 474

<210> 734
 <211> 157
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (3)..(3)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (109)..(109)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (115)..(115)
 <223> Xaa= any amino acid

 <400> 734
 Met Lys Xaa Leu Leu Ala Ala Val Met Met Ala Gly Leu Ala Gly Ala
 1 5 10 15
 Val Ser Ala Ala Gly Ile His Val Glu Asp Gly Trp Ala Arg Thr Thr
 20 25 30
 Val Glu Gly Met Lys Met Gly Gly Ala Phe Met Lys Ile His Asn Asp
 35 40 45
 Glu Ala Lys Gln Asp Phe Leu Leu Gly Gly Ser Ser Pro Val Ala Asp
 50 55 60

 Arg Val Glu Val His Thr His Ile Asn Asp Asn Gly Val Met Arg Met
 65 70 75 80
 Arg Glu Val Glu Gly Gly Val Pro Leu Glu Ala Lys Ser Val Thr Glu
 85 90 95
 Leu Lys Pro Gly Ser Tyr His Val Met Phe Met Gly Xaa Lys Lys Gln
 100 105 110
 Leu Lys Xaa Gly Asp Lys Ile Pro Val Thr Leu Lys Phe Lys Asn Ala
 115 120 125
 Lys Ala Gln Thr Val Gln Leu Glu Val Lys Thr Ala Pro Met Ser Ala
 130 135 140
 Met Asp His Gly His His His Gly Glu Ala His Gln His
 145 150 155

<210> 735
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N = Unknown

<400> 735
 nnnnnnnn

<210> 736
 <211> 86
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 736

Ile Asn Asp Asn Gly Val Met Arg Met Arg Glu Val Lys Gly Gly Val
1 5 10 15

Pro Leu Glu Ala Lys Ser Val Thr Glu Leu Lys Pro Gly Ser Tyr His
20 25 30

Val Met Phe Met Gly Leu Lys Lys Gln Leu Lys Glu Gly Asp Lys Ile
35 40 45

Pro Val Thr Leu Lys Phe Lys Asn Ala Lys Ala Gln Thr Val Gln Leu
50 55 60

Glu Val Lys Thr Ala Pro Met Ser Ala Met Asn His Gly His His His
65 70 75 80

Gly Glu Ala His Gln His
85

<210> 737

<211> 474

<212> DNA

<213> Neisseria gonorrhoeae

<400> 737

atgaaaaaat tattggcagc cgtgatgatg gcagggtttgg caggcgcggt ttccgcccgc	60
ggagtccatg tcgaggacgg ctgggcgcgc accactgtcg aaggatatgaa aatgggcggc	120
gcgttcatga aaatccacaa cgacgaagcc atacaagact ttgtgctcgg cggaagcatg	180
cccgttgccg accgcgtcga agtgcataca cacatcaacg acaacggcgt gatgcgtatg	240
cgcgaagtca aaggcggcgt gcctttggag gcgaaatccg ttaccgaact caaaccggc	300
agctatcacg tgatgtttat gggtttgaaa aaacaactga aagagggcga caagattccc	360
gttaccctga aatttaaaaa cgccaaagcg caaacggtcc aactggaagt caaaaccgcg	420
ccgatgtcgg caatgaacca cggtcacac cgcggcgaag cgcacagca ctaa	474

<210> 738

<211> 157

<212> PRT

<213> Neisseria gonorrhoeae

<400> 738

Met Lys Lys Leu Leu Ala Ala Val Met Met Ala Gly Leu Ala Gly Ala
1 5 10 15

Val Ser Ala Ala Gly Val His Val Glu Asp Gly Trp Ala Arg Thr Thr
20 25 30

Val Glu Gly Met Lys Met Gly Gly Ala Phe Met Lys Ile His Asn Asp
35 40 45

Glu Ala Ile Gln Asp Phe Val Leu Gly Gly Ser Met Pro Val Ala Asp
50 55 60

Arg Val Glu Val His Thr His Ile Asn Asp Asn Gly Val Met Arg Met
65 70 75 80

Arg Glu Val Lys Gly Gly Val Pro Leu Glu Ala Lys Ser Val Thr Glu

	85		90		95
Leu Lys Pro Gly Ser Tyr His Val Met Phe Met Gly Leu Lys Lys Gln					
	100		105		110
Leu Lys Glu Gly Asp Lys Ile Pro Val Thr Leu Lys Phe Lys Asn Ala					
	115		120		125
Lys Ala Gln Thr Val Gln Leu Glu Val Lys Thr Ala Pro Met Ser Ala					
	130		135		140
Met Asn His Gly His His His Gly Glu Ala His Gln His					
	145		150		155

<210> 739
 <211> 702
 <212> DNA
 <213> Neisseria meningitidis
 <400> 739

atgacggtaa	ctgcggccga	aggcggcaaa	gctgccaaagg	cgttaaaaaa	atatctgatt	60
acgggcattt	tggtctggct	gccgattgcg	gtaacggttt	gggtgggttc	ctatatcggt	120
tccgcgtccg	atcagctcgt	caacctgctg	ccgaagcaat	ggcggccgca	atatgttttg	180
gggtttaata	tcccggggct	gggcgttatc	gttgccattg	ccgtattggt	tgtaaccgga	240
ttgtttgccg	ccaacgtatt	gggtcggcag	atcctcgccg	cgtgggacag	cctgttgggg	300
cggattccgg	ttgtgaaatc	catctattcg	agtgtgaaaa	aagtatccga	atacgtgctg	360
tccgacagca	gccgttcggt	taaaacgccg	gtactcgtgc	cgtttcccca	gcccgggtatt	420
tggacgatyg	ctttcgtgtc	agggcagggtg	tcgaatgcgg	ttaaggccgc	attgccgaas	480
gacggcgatt	atctttccgt	gtatgttccg	accacgccga	atccgaccgg	cggttactat	540
attatggtaa	agaaaagcga	tgtgcgcgaa	ctcgatatga	gcgtggacga	ascattgaaa	600
tatgtgattt	cgctgggtat	ggtcacccct	gacgacctgc	ccgtcaaaac	attggcasga	660
cctatgccgt	ctgaaaaggc	ggatttgccc	gaacaacaat	aa		702

<210> 740
 <211> 233
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (160)..(160)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (198)..(198)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (220)..(220)
 <223> Xaa= any amino acid

<400> 740
 Met Thr Val Thr Ala Ala Glu Gly Gly Lys Ala Ala Lys Ala Leu Lys

1	5	10	15
Lys Tyr Leu Ile Thr Gly Ile Leu Val Trp Leu Pro Ile Ala Val Thr	20	25	30
Val Trp Val Val Ser Tyr Ile Val Ser Ala Ser Asp Gln Leu Val Asn	35	40	45
Leu Leu Pro Lys Gln Trp Arg Pro Gln Tyr Val Leu Gly Phe Asn Ile	50	55	60
Pro Gly Leu Gly Val Ile Val Ala Ile Ala Val Leu Phe Val Thr Gly	65	70	75
Leu Phe Ala Ala Asn Val Leu Gly Arg Gln Ile Leu Ala Ala Trp Asp	85	90	95
Ser Leu Leu Gly Arg Ile Pro Val Val Lys Ser Ile Tyr Ser Ser Val	100	105	110
Lys Lys Val Ser Glu Tyr Val Leu Ser Asp Ser Ser Arg Ser Phe Lys			
	115	120	125
Thr Pro Val Leu Val Pro Phe Pro Gln Pro Gly Ile Trp Thr Ile Ala	130	135	140
Phe Val Ser Gly Gln Val Ser Asn Ala Val Lys Ala Ala Leu Pro Xaa	145	150	155
Asp Gly Asp Tyr Leu Ser Val Tyr Val Pro Thr Thr Pro Asn Pro Thr	165	170	175
Gly Gly Tyr Tyr Ile Met Val Lys Lys Ser Asp Val Arg Glu Leu Asp	180	185	190
Met Ser Val Asp Glu Xaa Leu Lys Tyr Val Ile Ser Leu Gly Met Val	195	200	205
Ile Pro Asp Asp Leu Pro Val Lys Thr Leu Ala Xaa Pro Met Pro Ser	210	215	220
Glu Lys Ala Asp Leu Pro Glu Gln Gln	225	230	

<210> 741
 <211> 702
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (11)..(11)
 <223> N= Unknown

<400> 741

atgacggaac	ntgcggccga	aggcggcaaa	gctgccaarg	cgtaaataaa	atatctgatt	60
acggggcattt	tggctctggct	gccgattgctg	gtaacgggttt	gggtgggtttc	ctatatcggt	120
tccgcgtccg	atcagctcgt	caacctgctg	ccgaagcaat	ggcggccgca	atatgttttg	180
gggtttaata	tcccggggct	gggcgttatc	gttgccattg	ccgtattgtt	tgtaaccgga	240
ttgtttgccg	ccaacgtatt	gggtcggcag	atcctcgccg	cgtgggacag	cctgttgagg	300
cggattccgg	ttgtgaaatc	catctattcg	agtgtgaaaa	aagtatccga	atcgctgctg	360
tccgacagca	gccgttcgtt	taaaacgccg	gtactcgtgc	cgtttcccca	gcccgttatt	420
tggacgattg	ctttcgtgtc	agggcagggtg	tcgaatgcgg	ttaaggccgc	attgccgaag	480
gacggcgatt	atctttccgt	gtatgttccg	accacgccga	atccgaccgg	cggttactat	540
attatggtaa	agaaaagcga	tgtgcgcgaa	ctcgatatga	gcgtggacga	agcattgaaa	600
tatgtgattt	cgctgggtat	ggatcatccct	gacgacctgc	ccgtcaaaac	attggcagga	660
cctatgccgt	ctgaaaaggc	ggattttgcc	gaacaacaat	aa		702

<210> 742

<211> 233

<212> PRT

<213> Neisseria meningitidis

<220>

<221> misc_feature

<222> (4)..(4)

<223> Xaa= any amino acid

<400> 742

Met	Thr	Glu	Xaa	Ala	Ala	Glu	Gly	Gly	Lys	Ala	Ala	Lys	Ala	Leu	Lys
1				5					10					15	

Lys	Tyr	Leu	Ile	Thr	Gly	Ile	Leu	Val	Trp	Leu	Pro	Ile	Ala	Val	Thr
		20						25					30		

Val	Trp	Val	Val	Ser	Tyr	Ile	Val	Ser	Ala	Ser	Asp	Gln	Leu	Val	Asn
		35					40					45			

Leu	Leu	Pro	Lys	Gln	Trp	Arg	Pro	Gln	Tyr	Val	Leu	Gly	Phe	Asn	Ile
	50					55					60				

Pro	Gly	Leu	Gly	Val	Ile	Val	Ala	Ile	Ala	Val	Leu	Phe	Val	Thr	Gly
65					70				75						80

Leu	Phe	Ala	Ala	Asn	Val	Leu	Gly	Arg	Gln	Ile	Leu	Ala	Ala	Trp	Asp
				85					90					95	

Ser	Leu	Leu	Gly	Arg	Ile	Pro	Val	Val	Lys	Ser	Ile	Tyr	Ser	Ser	Val
			100					105					110		

Lys	Lys	Val	Ser	Glu	Ser	Leu	Leu	Ser	Asp	Ser	Ser	Arg	Ser	Phe	Lys
		115					120					125			

Thr	Pro	Val	Leu	Val	Pro	Phe	Pro	Gln	Pro	Gly	Ile	Trp	Thr	Ile	Ala
		130				135					140				

Phe	Val	Ser	Gly	Gln	Val	Ser	Asn	Ala	Val	Lys	Ala	Ala	Leu	Pro	Lys
145					150					155					160

Asp	Gly	Asp	Tyr	Leu	Ser	Val	Tyr	Val	Pro	Thr	Thr	Pro	Asn	Pro	Thr
				165					170					175	

Gly Gly Tyr Tyr Ile Met Val Lys Lys Ser Asp Val Arg Glu Leu Asp
180 185 190

Met Ser Val Asp Glu Ala Leu Lys Tyr Val Ile Ser Leu Gly Met Val
195 200 205

Ile Pro Asp Asp Leu Pro Val Lys Thr Leu Ala Gly Pro Met Pro Ser
210 215 220

Glu Lys Ala Asp Leu Pro Glu Gln Gln
225 230

<210> 743
<211> 702
<212> DNA
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (351)..(351)
<223> N= Unknown

<400> 743
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tccgcgtccg atcagctcgt caacctgctg ccgaagcaat ggccggccgca atatgttttg 180
gggtttaata tcccgggggt gggcggtatc gttgccattg ccgtattgtt tgtaaccgga 240
ttatttgccg caaacgtatt gggccggcag attcttgccg cgtgggacag cttgttgagg 300
cggattccgg ttgtgaagtc catctattcg agtgtgaaaa aagtatccga ntcgttgctg 360
tccgacagca gccgttcgtt taaaacacca gtactcgtgc cgtttcccca atcgggtatt 420
tggaacatcg cattcgtgtc cggtcagggt tgaatgcgg ttaaggccgc attgccgaag 480
gacggcgatt atctttccgt gtatgttccg accacgccga atccgaccgg cggttactat 540
attatggtaa agaaaagcga tgtgcgcgaa ctcgatatga gcgtggacga agcggtgaaa 600
tatgtgattt cgctgggtat ggtcatccct gacgacctgc ccgtcaaaac attggcagga 660
cctatgccgt ctgaaaaggc ggatttgccc gaacaacaat aa 702

<210> 744
<211> 233
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (117)..(117)
<223> Xaa= any amino acid

<400> 744
Met Thr Glu Pro Ala Ala Glu Gly Gly Lys Ala Ala Lys Ala Leu Lys
1 5 10 15

Lys Tyr Leu Ile Thr Gly Ile Leu Val Trp Leu Pro Ile Ala Val Thr
20 25 30

Val Trp Val Val Ser Tyr Ile Val Ser Ala Ser Asp Gln Leu Val Asn

35	40	45
Leu Leu Pro Lys Gln Trp Arg Pro Gln Tyr Val	Leu Gly Phe Asn Ile	
50	55	60
Pro Gly Leu Gly Val Ile Val Ala Ile Ala Val	Leu Phe Val Thr Gly	
65	70	75 80
Leu Phe Ala Ala Asn Val Leu Gly Arg Gln Ile	Leu Ala Ala Trp Asp	
	85	90 95
Ser Leu Leu Gly Arg Ile Pro Val Val Lys Ser Ile Tyr Ser Ser Val		
	100	105 110
Lys Lys Val Ser Xaa Ser Leu Leu Ser Asp Ser Ser Arg Ser Phe Lys		
	115	120 125
Thr Pro Val Leu Val Pro Phe Pro Gln Ser Gly Ile Trp Thr Ile Ala		
	130	135 140
Phe Val Ser Gly Gln Val Ser Asn Ala Val Lys Ala Ala Leu Pro Lys		
	145	150 155 160
Asp Gly Asp Tyr Leu Ser Val Tyr Val Pro Thr Thr Pro Asn Pro Thr		
	165	170 175
Gly Gly Tyr Tyr Ile Met Val Lys Lys Ser Asp Val Arg Glu Leu Asp		
	180	185 190
Met Ser Val Asp Glu Ala Leu Lys Tyr Val Ile Ser Leu Gly Met Val		
	195	200 205
Ile Pro Asp Asp Leu Pro Val Lys Thr Leu Ala Gly Pro Met Pro Ser		
	210	215 220
Glu Lys Ala Asp Leu Pro Glu Gln Gln		
225	230	

<210> 745
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N = Unknown

<400> 745
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<210> 746
 <211> 233
 <212> PRT
 <213> Neisseria gonorrhoeae

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<220>
<221> misc_feature
<222> (100)..(100)
<223> Xaa= any amino acid

<400> 746
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1          5          10          15

Lys Tyr Leu Ile Thr Gly Ile Leu Val Trp Leu Pro Ile Ala Val Thr
          20          25          30

Val Trp Val Val Ser Tyr Ile Val Ser Ala Ser Asp Gln Leu Val Asn
          35          40          45

Leu Leu Pro Lys Gln Trp Arg Pro Gln Tyr Val Leu Gly Phe Asn Ile
50          55          60

Pro Gly Leu Gly Val Ile Val Ala Ile Ala Val Leu Phe Val Thr Gly
65          70          75          80

Leu Phe Ala Ala Asn Val Leu Gly Arg Gln Ile Leu Ala Ala Trp Asp
          85          90          95

Ser Leu Leu Xaa Arg Ile Pro Val Val Lys Ser Ile Tyr Ser Ser Val
          100          105          110

Lys Lys Val Ser Glu Ser Leu Leu Ser Asp Ser Ser Arg Ser Phe Lys
          115          120          125

Thr Pro Val Leu Val Pro Phe Pro Gln Ser Gly Ile Trp Thr Ile Ala
          130          135          140

Phe Val Ser Gly Gln Val Ser Asn Ala Val Lys Ala Ala Leu Pro Gln
145          150          155          160

Asp Gly Asp Tyr Leu Ser Val Tyr Val Pro Thr Thr Pro Asn Pro Thr
          165          170          175

Gly Gly Tyr Tyr Ile Met Val Lys Lys Ser Asp Val Arg Glu Leu Asp
          180          185          190

Met Ser Val Asp Glu Ala Leu Lys Tyr Val Ile Ser Leu Gly Met Val
          195          200          205

Ile Pro Asp Asp Leu Pro Val Lys Thr Leu Ala Gly Pro Met Pro Pro
          210          215          220

Glu Lys Ala Glu Leu Pro Glu Gln Gln
225          230

<210> 747
<211> 702
<212> DNA

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<213> Neisseria gonorrhoeae

<400> 747

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tccgcgtccg accagcttgt caacctgctg ccgaagcaat ggcgggccgca atatgttttg    180
gggtttaata tccccgggct cggcggttatt gttgccattg ccgtattggt tgtaaccgga    240
ttatttgccg caaacgtggt gggccggcag attcttgccg cgtgggacag cctggtgggg    300
cggattccgg ttgtcaaata catctattcg agtgtgaaaa aagtatccga atcgctgctg    360
tccgacagca gccgttcggt taaaacgccg gtactcgtgc cgtttcccca atcgggtatt    420
tggacaatcg cattcgtgtc cggtcagggt tccaatgcgg ttaaggccgc attgccgcag    480
gatggcgatt atctttccgt gtatgtcccg accacgccc aaccgaccgg cggttactat    540
attatggtaa agaaaagcga tgtgcgcgaa ctcgatatga gcgtggacga agcgttgaaa    600
tatgtgattt cgctgggtat ggtcatccct gacgacctgc ccgtcaaac attggcagga    660
cctatgccgc ctgaaaaggc ggagttgccc gaacaacaat aa                          702

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<210> 748

<211> 233

<212> PRT

<213> Neisseria gonorrhoeae

<400> 748

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Met Thr Glu Pro Ala Ala Glu Gly Gly Lys Ala Ala Lys Ala Leu Lys
1          5          10          15

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Lys Tyr Leu Ile Thr Gly Ile Leu Val Trp Leu Pro Ile Ala Val Thr

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20

25

30

```

Val Trp Val Val Ser Tyr Ile Val Ser Ala Ser Asp Gln Leu Val Asn
35          40          45

```

```

Leu Leu Pro Lys Gln Trp Arg Pro Gln Tyr Val Leu Gly Phe Asn Ile
50          55          60

```

```

Pro Gly Leu Gly Val Ile Val Ala Ile Ala Val Leu Phe Val Thr Gly
65          70          75          80

```

```

Leu Phe Ala Ala Asn Val Leu Gly Arg Gln Ile Leu Ala Ala Trp Asp
85          90          95

```

```

Ser Leu Leu Gly Arg Ile Pro Val Val Lys Ser Ile Tyr Ser Ser Val
100         105         110

```

```

Lys Lys Val Ser Glu Ser Leu Leu Ser Asp Ser Ser Arg Ser Phe Lys
115         120         125

```

```

Thr Pro Val Leu Val Pro Phe Pro Gln Ser Gly Ile Trp Thr Ile Ala
130         135         140

```

```

Phe Val Ser Gly Gln Val Ser Asn Ala Val Lys Ala Ala Leu Pro Gln
145         150         155         160

```

```

Asp Gly Asp Tyr Leu Ser Val Tyr Val Pro Thr Thr Pro Asn Pro Thr
165         170         175

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Gly Gly Tyr Tyr Ile Met Val Lys Lys Ser Asp Val Arg Glu Leu Asp
180 185 190

Met Ser Val Asp Glu Ala Leu Lys Tyr Val Ile Ser Leu Gly Met Val
195 200 205

Ile Pro Asp Asp Leu Pro Val Lys Thr Leu Ala Gly Pro Met Pro Pro
210 215 220

Glu Lys Ala Glu Leu Pro Glu Gln Gln
225 230

<210> 749
<211> 1161
<212> DNA
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (235)..(235)
<223> N= Unknown

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ctgcacgcct ttgtgttagg ttcgctgatt gccgtcgtgg tgtgggtattt cttgtttaaa 180
ttcattatcg gsggtactca atatccccga aaagatgcag cgtttcggtt cggcncgtaa 240

aggcckcaag sscgsgcttg ccttgaacaa ggccgggtttg gcgtattttg aagggcgttt 300
tgaaaaggcg gaactagaag cctcacgcgt gttggtcaac aaagtaggcc gagagacaac 360
cggacttttg cattgatgct grgcgcgcac gccgcgggac agatggaaaa catcgasstg 420
cgcgaccggt atcttgcgga aatcgccaaa ctgccggaaa aacagcagct ttcccgttat 480
cttttggttg cgaatcggc gttgaaccgg cgcgattacg aagcggcgga agccaatctt 540
cattcggcgg cgaagatgaa tgccaacctt acgcgcctcg tgcgtctgca attcgttacg 600
ctttcgacag gggcgacgcg ttgcaggttc tggcaaaaac cgaaaaactt tccaaggcgg 660
gcgcgttggg caaatcgga atggaacggt atcaaaattg ggcataatcg tcgccagctg 720
gcggatgctg ccgatgccgc cgctttgaaa acctgcctga agcggattcc cgacagcctc 780
aaaaacgggg aattgagcgt atcggttgcg gaaaagtacg aacgtttggg actgtatgcc 840
gatgcggtca aatgggtcaa acagcattat ccgcasaacc gccgccccga gcttttgtaa 900
gcctttgtcg aaagcgtgcg ctttttgggc gagcgcgaac agcagaaagc catcgatttt 960
gccgatgctt ggctgaaaga acagcccgat aacgcgcttc tgctgatgta tctcggtcgg 1020
ctcgcttcg gccgcaact ttggggcaag gcaaaaggct accttgaagc gagcattgca 1080
ttaaagccga gtatttcgc gcgtttggtt ctaacaaagg ttttcgacga aatcggagaa 1140
ccgcagaagg cggaggcgca c 1161

<210> 750
<211> 386
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (82)..(82)
<223> Xaa= any amino acid

<220>

<221> misc_feature
 <222> (84)..(85)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (127)..(127)
 <223> Xaa= any amino acid

<220>
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 <222> (138)..(139)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (196)..(196)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (291)..(291)
 <223> Xaa= any amino acid

<400> 750
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 20 25 30

Gly Gln Thr Met Leu Arg Ile Asn Leu His Ala Phe Val Leu Gly Ser
 35 40 45

Leu Ile Ala Val Val Val Trp Tyr Phe Leu Phe Lys Phe Ile Ile Gly
 50 55 60

Val Leu Asn Ile Pro Glu Lys Met Gln Arg Phe Gly Ser Ala Arg Lys
 65 70 75 80

Gly Xaa Lys Xaa Xaa Leu Ala Leu Asn Lys Ala Gly Leu Ala Tyr Phe
 85 90 95

Glu Gly Arg Phe Glu Lys Ala Glu Leu Glu Ala Ser Arg Val Leu Val
 100 105 110

Asn Lys Val Gly Arg Asp Asn Arg Thr Leu Ala Leu Met Leu Xaa Ala
 115 120 125

His Ala Ala Gly Gln Met Glu Asn Ile Xaa Xaa Arg Asp Arg Tyr Leu
 130 135 140

Ala Glu Ile Ala Lys Leu Pro Glu Lys Gln Gln Leu Ser Arg Tyr Leu
 145 150 155 160

Leu Leu Ala Glu Ser Ala Leu Asn Arg Arg Asp Tyr Glu Ala Ala Glu
 165 170 175
 Ala Asn Leu His Ala Ala Ala Lys Met Asn Ala Asn Leu Thr Arg Leu
 180 185 190
 Val Arg Leu Xaa Ile Arg Tyr Ala Phe Asp Arg Gly Asp Ala Leu Gln
 195 200 205
 Val Leu Ala Lys Thr Glu Lys Leu Ser Lys Ala Gly Ala Leu Gly Lys
 210 215 220
 Ser Glu Met Glu Arg Tyr Gln Asn Trp Ala Tyr Arg Arg Gln Leu Ala
 225 230 235 240
 Asp Ala Ala Asp Ala Ala Ala Leu Lys Thr Cys Leu Lys Arg Ile Pro
 245 250 255
 Asp Ser Leu Lys Asn Gly Glu Leu Ser Val Ser Val Ala Glu Lys Tyr
 260 265 270
 Glu Arg Leu Gly Leu Tyr Ala Asp Ala Val Lys Trp Val Lys Gln His
 275 280 285
 Tyr Pro Xaa Asn Arg Arg Pro Glu Leu Leu Glu Ala Phe Val Glu Ser
 290 295 300
 Val Arg Phe Leu Gly Glu Arg Glu Gln Gln Lys Ala Ile Asp Phe Ala
 305 310 315 320
 Asp Ala Trp Leu Lys Glu Gln Pro Asp Asn Ala Leu Leu Leu Met Tyr
 325 330 335
 Leu Gly Arg Leu Ala Phe Gly Arg Lys Leu Trp Gly Lys Ala Lys Gly
 340 345 350
 Tyr Leu Glu Ala Ser Ile Ala Leu Lys Pro Ser Ile Ser Ala Arg Leu
 355 360 365
 Val Leu Thr Lys Val Phe Asp Glu Ile Gly Glu Pro Gln Lys Ala Glu
 370 375 380
 Ala His
 385

<210> 751

<211> 1224

<212> DNA

<213> Neisseria meningitidis

<400> 751

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ctgcacgctt ttgtgtagg ttgcgtgatt gccgtcgtgg tgtggatttt cttgtttaaa	180
ttcattatcg gcgtactcaa tatcccgaa aagatgcagc gtttcggttc ggcgcgtaaa	240
ggccgcaagg ccgcgcttgc cttgaacaag gcggggttgg cgtattttga agggcgtttt	300

gaaaaggcgg	aactagaagc	ctcacgcgtg	ttggtcaaca	aagaggccgg	agacaaccgg	360
actttggcat	tgatgctggg	cgcgcacgcc	gccggacaga	tggaaaacat	cgagctgcgc	420
gaccgttatc	ttgcggaaat	cgccaaactg	ccggaaaaac	agcagctttc	ccgttatctt	480
ttgttggcgg	aatcggcggt	gaaccggcgc	gattacgaag	cggcggaagc	caatcttcat	540
gcggcggcga	agatgaatgc	caaccttacg	cgcctcgtgc	gtctgcaact	tcgttacgct	600
ttcgacaggg	gcgacgcgtt	gcaggttctg	gcaaaaaccg	aaaaactttc	caaggcgggc	660
gcgttgggca	aatcggaaat	ggaacggtat	caaaattggg	cataccgccg	ccagctggcg	720
gatgctgccg	atgccgccgc	tttgaaaacc	tgcctgaagc	ggattcccga	cagcctcaaa	780
aacggggaat	tgagcgtatc	ggttgcggaa	aagtacgaac	gtttgggact	gtatgccgat	840
gcggtcaaat	gggtcaaaaca	gcattatccg	cacaaccgcc	gccccgagct	tttgggaagcc	900
tttgtcgaaa	gcgtgcgctt	tttgggcgag	cgcgaacagc	agaaagccat	cgattttgcc	960
gatgcttggc	tgaaagaaca	gcccgataac	gcgcttctgc	tgatgtatct	cggtcggctc	1020
gcctacggcc	gcaaactttg	gggcaaggca	aaaggctacc	ttgaagcgag	cattgcatta	1080
aagccgagta	tttccgcgcg	tttggttcta	gcaaaggttt	tcgacgaaat	cggagaaccg	1140
cagaaggcgg	aggcgcagcg	caacttggtt	ttggaagccg	tctccgatga	cgaacgtcac	1200
gcagcgcttag	agcagcatag	ctga				1224

<210> 752
 <211> 407
 <212> PRT
 <213> Neisseria meningitidis

<400> 752
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 20 25 30
 Gly Gln Thr Met Leu Arg Ile Asn Leu His Ala Phe Val Leu Gly Ser
 35 40 45
 Leu Ile Ala Val Val Val Trp Tyr Phe Leu Phe Lys Phe Ile Ile Gly
 50 55 60
 Val Leu Asn Ile Pro Glu Lys Met Gln Arg Phe Gly Ser Ala Arg Lys
 65 70 75 80
 Gly Arg Lys Ala Ala Leu Ala Leu Asn Lys Ala Gly Leu Ala Tyr Phe
 85 90 95
 Glu Gly Arg Phe Glu Lys Ala Glu Leu Glu Ala Ser Arg Val Leu Val
 100 105 110
 Asn Lys Glu Ala Gly Asp Asn Arg Thr Leu Ala Leu Met Leu Gly Ala
 115 120 125
 His Ala Ala Gly Gln Met Glu Asn Ile Glu Leu Arg Asp Arg Tyr Leu
 130 135 140
 Ala Glu Ile Ala Lys Leu Pro Glu Lys Gln Gln Leu Ser Arg Tyr Leu
 145 150 155 160
 Leu Leu Ala Glu Ser Ala Leu Asn Arg Arg Asp Tyr Glu Ala Ala Glu
 165 170 175

Ala Asn Leu His Ala Ala Ala Lys Met Asn Ala Asn Leu Thr Arg Leu
 180 185 190
 Val Arg Leu Gln Leu Arg Tyr Ala Phe Asp Arg Gly Asp Ala Leu Gln
 195 200 205
 Val Leu Ala Lys Thr Glu Lys Leu Ser Lys Ala Gly Ala Leu Gly Lys
 210 215 220
 Ser Glu Met Glu Arg Tyr Gln Asn Trp Ala Tyr Arg Arg Gln Leu Ala
 225 230 235 240
 Asp Ala Ala Asp Ala Ala Ala Leu Lys Thr Cys Leu Lys Arg Ile Pro
 245 250 255
 Asp Ser Leu Lys Asn Gly Glu Leu Ser Val Ser Val Ala Glu Lys Tyr
 260 265 270
 Glu Arg Leu Gly Leu Tyr Ala Asp Ala Val Lys Trp Val Lys Gln His
 275 280 285
 Tyr Pro His Asn Arg Arg Pro Glu Leu Leu Glu Ala Phe Val Glu Ser
 290 295 300
 Val Arg Phe Leu Gly Glu Arg Glu Gln Gln Lys Ala Ile Asp Phe Ala
 305 310 315 320
 Asp Ala Trp Leu Lys Glu Gln Pro Asp Asn Ala Leu Leu Leu Met Tyr
 325 330 335
 Leu Gly Arg Leu Ala Tyr Gly Arg Lys Leu Trp Gly Lys Ala Lys Gly
 340 345 350
 Tyr Leu Glu Ala Ser Ile Ala Leu Lys Pro Ser Ile Ser Ala Arg Leu
 355 360 365
 Val Leu Ala Lys Val Phe Asp Glu Ile Gly Glu Pro Gln Lys Ala Glu
 370 375 380
 Ala Gln Arg Asn Leu Val Leu Glu Ala Val Ser Asp Asp Glu Arg His
 385 390 395 400
 Ala Ala Leu Glu Gln His Ser
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<210> 753
 <211> 1218
 <212> DNA
 <213> Neisseria meningitidis
 <220>
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 <222> (42)..(43)
 <223> N= Unknown

<220>
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 <222> (70)..(70)
 <223> N= Unknown

<220>
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 <222> (203)..(203)
 <223> N= Unknown

<220>
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 <222> (646)..(646)
 <223> N= Unknown

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 <222> (665)..(665)
 <223> N= Unknown

<220>
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 <222> (718)..(718)
 <223> N= Unknown

<220>
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 <222> (900)..(900)
 <223> N= Unknown

<220>

<221> misc_feature
 <222> (1004)..(1004)
 <223> N= Unknown

<220>
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 <222> (1197)..(1197)
 <223> N= Unknown

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 ctgcacgcct ttgtgttagg ttgcgtgatt gccgtcgtgg tgtgggtattt cctgttcaaa 180
 ttcacatcgc gcgtactcaa tancccccga aagatgcagc gtttcggttc ggcgcgtaaa 240
 ggccgcaagg ccgcgcttgc tttgaacaag gcgggtttgg cgtattttga agggcgtttt 300
 gaaaaggcgg aacttgaagc ctgcgcgcga ttgggaaaca aagaggcggg ggataaccgg 360
 actttggcat tgatgttggg cgcacatgcc gccgggcaga tggaaaacat cgagctgcgc 420
 gaccgttatc ttgcggaaat cgccaaactg ccggaaaagc agcagctttc ccgttatctt 480
 ttgtttggcg aatcggcggt gaaccggcgc gattacgaag cggcggaagc caatcttcat 540
 gcggcggcga agatgaatgc caaccttacg gcctcgtgc gtctgcaact tcgttacgct 600
 ttcgacaggg gcgacgcggt gcaggttctg gcaaaaaccg aaaaantttc caaggcgggc 660
 gcgtngggca aatcggaaat ggaacgggtat caaaattggg cataccgccg ccagctgncg 720
 gatgctgccg atgccgcgcg tttgaaaacc tgctgaagc ggattcccg cagcctcaaa 780

aacggggaat	tgagcgtatc	ggttgcggaa	aagtacgaac	gtttgggact	gtatgccgat	840
gcggtcaaat	gggtcaaaca	gcattatccg	cacaaccgcc	gacccgaact	tttggaagcn	900
tttgtcgaaa	gcgtgcgctt	tttgggcgaa	cgcgatcagc	agaaagccat	cgattttgcc	960
gatgcttggc	tgaaagaaca	gcccataat	gcgcttctgc	tgangtatct	cggtcggctc	1020
gcctacggcc	gcaaactttg	gggcaaggca	aaaggctacc	ttgaagcgag	cattgcatta	1080
aagccgagta	tttccgcgcg	tttggttctg	gcaaagggtt	ttgacgaaac	cggagaaccg	1140
cagaaggcgg	aggcgcagcg	caacttggtt	ttggcaagcg	ttgccgagga	aaaccgncct	1200
tccgccgaaa	cccattga					1218

<210> 754
 <211> 405
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (15)..(15)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (24)..(24)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (68)..(68)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (216)..(216)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (222)..(222)
 <223> Xaa= any amino acid

<220>
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 <222> (240)..(240)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (335)..(335)
 <223> Xaa= any amino acid

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 20 25 30

Gly Gln Thr Met Leu Arg Ile Asn Leu His Ala Phe Val Leu Gly Ser
 35 40 45
 Leu Ile Ala Val Val Val Trp Tyr Phe Leu Phe Lys Phe Ile Ile Gly
 50 55 60
 Val Leu Asn Xaa Pro Glu Lys Met Gln Arg Phe Gly Ser Ala Arg Lys
 65 70 75 80
 Gly Arg Lys Ala Ala Leu Ala Leu Asn Lys Ala Gly Leu Ala Tyr Phe
 85 90 95
 Glu Gly Arg Phe Glu Lys Ala Glu Leu Glu Ala Ser Arg Val Leu Gly
 100 105 110
 Asn Lys Glu Ala Gly Asp Asn Arg Thr Leu Ala Leu Met Leu Gly Ala
 115 120 125
 His Ala Ala Gly Gln Met Glu Asn Ile Glu Leu Arg Asp Arg Tyr Leu
 130 135 140
 Ala Glu Ile Ala Lys Leu Pro Glu Lys Gln Gln Leu Ser Arg Tyr Leu
 145 150 155 160
 Leu Leu Ala Glu Ser Ala Leu Asn Arg Arg Asp Tyr Glu Ala Ala Glu
 165 170 175
 Ala Asn Leu His Ala Ala Ala Lys Met Asn Ala Asn Leu Thr Arg Leu
 180 185 190
 Val Arg Leu Gln Leu Arg Tyr Ala Phe Asp Arg Gly Asp Ala Leu Gln
 195 200 205
 Val Leu Ala Lys Thr Glu Lys Xaa Ser Lys Ala Gly Ala Xaa Gly Lys
 210 215 220
 Ser Glu Met Glu Arg Tyr Gln Asn Trp Ala Tyr Arg Arg Gln Leu Xaa
 225 230 235 240
 Asp Ala Ala Asp Ala Ala Ala Leu Lys Thr Cys Leu Lys Arg Ile Pro
 245 250 255
 Asp Ser Leu Lys Asn Gly Glu Leu Ser Val Ser Val Ala Glu Lys Tyr
 260 265 270
 Glu Arg Leu Gly Leu Tyr Ala Asp Ala Val Lys Trp Val Lys Gln His
 275 280 285
 Tyr Pro His Asn Arg Arg Pro Glu Leu Leu Glu Ala Phe Val Glu Ser
 290 295 300
 Val Arg Phe Leu Gly Glu Arg Asp Gln Gln Lys Ala Ile Asp Phe Ala
 305 310 315 320
 Asp Ala Trp Leu Lys Glu Gln Pro Asp Asn Ala Leu Leu Leu Xaa Tyr

[illegible]

20	25	30
Gly Gln Thr Met Leu Arg Ile Asn Leu His Ala Phe Val Leu Gly Ser		
35	40	45
Leu Ile Ala Val Val Val Trp Tyr Phe Leu Phe Lys Phe Ile Ile Gly		
50	55	60
Val Leu Asn Ile Pro Glu Asn Met Arg Arg Ser Gly Ser Ala Arg Lys		
65	70	75
Gly Arg Lys Ala Ala Leu Ala Leu Asn Lys Ala Gly Leu Ala Tyr Phe		
85	90	95
Glu Gly Arg Phe Glu Lys Ala Glu Leu Glu Ala Ser Arg Val Leu Gly		
100	105	110
Asn Lys Glu Ala Gly Asp Asn Arg Thr Leu Ala Leu Met Leu Gly Ala		
115	120	125
His Ala Ala Gly Gln Met Glu Asn Ile Glu Leu Arg Asp Arg Tyr Leu		
130	135	140
Ala Glu Ile Ala Lys Leu Pro Glu Lys Gln Gln Leu Ser Arg Tyr Leu		
145	150	155
Leu Leu Ala Glu Ser Ala Leu Asn Arg Arg Asp Tyr Glu Ala Ala Glu		
165	170	175
Ala Asn Leu His Ala Ala Ala Lys Met Asn Ala Asn Leu Thr Arg Leu		
180	185	190
Val Arg Leu Gln Leu Arg Tyr Ala Phe Asp Arg Gly Asp Ala Leu Gln		
195	200	205
Val Leu Ala Lys Thr Glu Lys Leu Ser Lys Ala Gly Ala Leu Gly Lys		
210	215	220
Ser Glu Met Glu Arg Tyr Gln Asn Trp Ala Tyr Arg Arg Gln Met Ala		
225	230	235
Asp Ala Ala Asp Ala Ala Ala Leu Lys Thr Cys Leu Lys Arg Ile Pro		
245	250	255
Asp Ser Leu Lys Asn Gly Glu Leu Ser Val Ser Val Ala Glu Lys Tyr		
260	265	270
Glu Arg Leu Gly Leu Tyr Ala Asp Ala Val Lys Trp Val Lys Gln His		
275	280	285
Tyr Pro His Asn Arg Arg Pro Glu Leu Leu Glu Ala Phe Val Glu Ser		
290	295	300
Val Arg Phe Leu Gly Glu Arg Glu Gln Gln Lys Ala Ile Asp Phe Ala		
305	310	315
		320

Asp Ser Trp Leu Lys Glu Gln Pro Asp Asn Ala Leu Leu Leu Met Tyr
 325 330 335
 Leu Gly Arg Leu Ala Tyr Gly Arg Lys Leu Trp Gly Lys Ala Lys Gly
 340 345 350
 Tyr Leu Glu Ala Ser Ile Ala Leu Lys Pro Ser Ile Pro Ala Arg Leu
 355 360 365
 Val Leu Ala Lys Val Phe Asp Glu Thr Ala Gln Ser Gln Lys Ala Glu
 370 375 380
 Ala Gln Arg Asn Leu Val Leu Ala Ser Val Ala Gly Glu Asn Arg Pro
 385 390 395 400
 Ser Ala Glu Thr Arg
 405

<210> 757
 <211> 429
 <212> DNA
 <213> Neisseria meningitidis

<400> 757
 atgatgtttt cttggttcaa gctgtttcac ttgttttttg tcatttcgtg gtttgcaggg 60
 ctgtttttacc tgccgaggat tttcgtcaat atggcgatga ttgatgtgcc gcgcggcaat 120
 cccgagtatg tgcgtctgtc gggcatggcg gtgcggctgt accgttttat gtcgccgttg 180
 ggcttcggcg cggtcgtgtt cggcgcgcg ataccgtttg ccgccggtg gtggggcagc 240
 ggctgggtac acgtcaaaact gtgtttgggc ttgatgtctt tggcttacca gttgtattgc 300
 ggcgtgctgc tgcgccgttt tcaggattac agcaatgctt tttcacaccg ctggtaccgc 360
 gtgttcaacg aaatccccgt gctgctgatg gttgccgcgc tgtatstggt cgtgttcaaa 420
 ccgttttga 429

<210> 758
 <211> 142
 <212> PRT

<213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (136)..(136)
 <223> Xaa= any amino acid

<400> 758
 Met Met Phe Ser Trp Phe Lys Leu Phe His Leu Phe Phe Val Ile Ser
 1 5 10 15
 Trp Phe Ala Gly Leu Phe Tyr Leu Pro Arg Ile Phe Val Asn Met Ala
 20 25 30
 Met Ile Asp Val Pro Arg Gly Asn Pro Glu Tyr Val Arg Leu Ser Gly
 35 40 45
 Met Ala Val Arg Leu Tyr Arg Phe Met Ser Pro Leu Gly Phe Gly Ala

50					55					60					
Val	Val	Phe	Gly	Ala	Ala	Ile	Pro	Phe	Ala	Ala	Gly	Trp	Trp	Gly	Ser
65					70					75					80
Gly	Trp	Val	His	Val	Lys	Leu	Cys	Leu	Gly	Leu	Met	Leu	Leu	Ala	Tyr
				85					90					95	
Gln	Leu	Tyr	Cys	Gly	Val	Leu	Leu	Arg	Arg	Phe	Gln	Asp	Tyr	Ser	Asn
			100					105					110		
Ala	Phe	Ser	His	Arg	Trp	Tyr	Arg	Val	Phe	Asn	Glu	Ile	Pro	Val	Leu
		115					120					125			
Leu	Met	Val	Ala	Ala	Leu	Tyr	Xaa	Val	Val	Phe	Lys	Pro	Phe		
	130					135					140				

Gln Leu Tyr Cys Gly Val Leu Leu Arg Arg Phe Gln Asp Tyr Ser Asn
100 105 110

Ala Phe Ser His Arg Trp Tyr Arg Val Phe Asn Glu Ile Pro Val Leu
115 120 125

Leu Met Val Ala Ala Leu Tyr Leu Val Val Phe Lys Pro Phe
130 135 140

<210> 761
<211> 429
<212> DNA
<213> Neisseria meningitidis

<400> 761
atgatgtttt cttggttcaa gctgtttcac ttgttttttg tcatttcgtg gtttgcaggg 60
ctgtttttacc tgccgaggat ttctgtcaat atggcgatga ttgatgtgcc gcgcggcaat 120
cccagagtatg tgcgtctgtc gggcatggcg gtgcggctgt accgttttat gtcgccgttg 180
ggcttcggcg cggtcgtgtt cggcgcgcg ataccgtttg ccgcggctg gtggggcagc 240
ggctgggtac acgtcaaact gtgtttgggc ttgatgtctt tggcttacca gttgtattgc 300
ggcgtgctgc tgcgcggttt tcaggattac agcaatgctt tttcacaccg ctggtaccgc 360
gtgttcaacg aaatccccgt gctgctgatg gttgccgcgc tgtatctggt cgtgttcaaa 420
ccgttttga 429

<210> 762
<211> 142
<212> PRT
<213> Neisseria meningitidis

<400> 762
Met Met Phe Ser Trp Phe Lys Leu Phe His Leu Phe Phe Val Ile Ser
1 5 10 15

Trp Phe Ala Gly Leu Phe Tyr Leu Pro Arg Ile Phe Val Asn Met Ala
20 25 30

Met Ile Asp Val Pro Arg Gly Asn Pro Glu Tyr Val Arg Leu Ser Gly
35 40 45

Met Ala Val Arg Leu Tyr Arg Phe Met Ser Pro Leu Gly Phe Gly Ala
50 55 60

Val Val Phe Gly Ala Ala Ile Pro Phe Ala Ala Gly Trp Trp Gly Ser
65 70 75 80

Gly Trp Val His Val Lys Leu Cys Leu Gly Leu Met Leu Leu Ala Tyr
85 90 95

Gln Leu Tyr Cys Gly Val Leu Leu Arg Arg Phe Gln Asp Tyr Ser Asn
100 105 110

Ala Phe Ser His Arg Trp Tyr Arg Val Phe Asn Glu Ile Pro Val Leu
115 120 125

Leu Met Val Ala Ala Leu Tyr Leu Val Val Phe Lys Pro Phe

130 135 140

<210> 763
 <211> 429
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 763
 atgatgtttt cttggttcaa gctgtttcac ttgttttttg tcatttcgtg gtttgcaggg 60
 ctgtttttacc tgccgaggat tttcgtcaat atggcgatga ttgatgcgcc gcgcggcaat 120
 cccgagtatg tgcgcctgtc ggggatggcg gtgcggttgt accgttttat gtcgcctttg 180
 gggttcggcg cggtcgtgtt cggcgcgcg ataccgtttg ccgccggccg gtggggcagc 240
 ggctgggttc acgtcaaact gtgtttgggc ttgatgctct tggcttatca gttgtattgc 300
 ggcgtgctgc tgcgccgttt tcaggattac agcaatgctt tttcacaccg ctggtaccgc 360
 gtgttcaacg aaatccccgt gctgctgatg gttgccgcgc tgtatctggt cgtgttcaaa 420
 ccgttttga 429

<210> 764
 <211> 142
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 764
 Met Met Phe Ser Trp Phe Lys Leu Phe His Leu Phe Phe Val Ile Ser
 1 5 10 15
 Trp Phe Ala Gly Leu Phe Tyr Leu Pro Arg Ile Phe Val Asn Met Ala
 20 25 30
 Met Ile Asp Ala Pro Arg Gly Asn Pro Glu Tyr Val Arg Leu Ser Gly
 35 40 45
 Met Ala Val Arg Leu Tyr Arg Phe Met Ser Pro Leu Gly Phe Gly Ala
 50 55 60
 Val Val Phe Gly Ala Ala Ile Pro Phe Ala Ala Gly Arg Trp Gly Ser
 65 70 75 80
 Gly Trp Val His Val Lys Leu Cys Leu Gly Leu Met Leu Leu Ala Tyr
 85 90 95
 Gln Leu Tyr Cys Gly Val Leu Leu Arg Arg Phe Gln Asp Tyr Ser Asn
 100 105 110
 Ala Phe Ser His Arg Trp Tyr Arg Val Phe Asn Glu Ile Pro Val Leu
 115 120 125
 Leu Met Val Ala Ala Leu Tyr Leu Val Val Phe Lys Pro Phe
 130 135 140

<210> 765
 <211> 592
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Novel Sequence

<220>

<221> misc_feature

<222> (24)..(30)

<223> N= Unknown

<400> 765

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ttggggcgga tgggtcttaac tgaagcccgga gccgcacgtg cttgatatta cggaaacggg 120
caggcgcggc atttcgttta cgattttgtc cgaaccggat acgccgatta aggcgaagct 180
cgacagcgtc gaccccgggc tgaccacgat gtcgtcgggc ggttacaaca gcagtacgga 240
tacggcttcc aatgcggtct actattatgc ccgttcgttt gtgccgaatc cggacggcaa 300
actcgccacg gggatgacga cgcagaatac ggttgaaatc gacggcgtga aaaatgtgct 360
gattattccg tcgctgaccg tgaaaaatcg cggcggcaag gcgtttgtgc gcgtgttggg 420
tgcggaaggc aaggcggcgg aacgcgaaat ccggaccggg atgagagaca gtatgaatac 480
cgaagtaaaa agcgggttga aagaggggga caaagtggtc atctccgaaa taaccgccgc 540
cgagcaacag gaaagcggcg aacgcgccct aggcggcccg ccgcgccgat aa 592
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<210> 766

<211> 392

<212> PRT

<213> Neisseria meningitidis

<220>

<221> misc_feature

<222> (24)..(24)

<223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (42)..(239)

<223> Xaa= any amino acid

<400> 766

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Met Ala Lys Met Met Lys Trp Ala Ala Val Ala Ala Val Ala Ala Ala
1          5          10          15
```

```
Ala Val Trp Gly Gly Trp Ser Xaa Leu Lys Pro Glu Pro His Val Leu
20          25          30
```

```
Asp Ile Thr Glu Thr Val Arg Arg Gly Xaa Xaa Xaa Xaa Xaa Xaa Xaa
35          40          45
```

```
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
50          55          60
```

```
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
65          70          75          80
```

```
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
85          90          95
```

```
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
100         105         110
```


Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 115 120 125

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 130 135 140

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 145 150 155 160

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 165 170 175

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 180 185 190

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 195 200 205

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 210 215 220

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 225 230 235 240

Ser Phe Thr Ile Leu Ser Glu Pro Asp Thr Pro Ile Lys Ala Lys Leu
 245 250 255

Asp Ser Val Asp Pro Gly Leu Thr Thr Met Ser Ser Gly Gly Tyr Asn
 260 265 270

Ser Ser Thr Asp Thr Ala Ser Asn Ala Val Tyr Tyr Tyr Ala Arg Ser
 275 280 285

Phe Val Pro Asn Pro Asp Gly Lys Leu Ala Thr Gly Met Thr Thr Gln
 290 295 300

Asn Thr Val Glu Ile Asp Gly Val Lys Asn Val Leu Ile Ile Pro Ser
 305 310 315 320

Leu Thr Val Lys Asn Arg Gly Gly Lys Ala Phe Val Arg Val Leu Gly
 325 330 335

Ala Asp Gly Lys Ala Ala Glu Arg Glu Ile Arg Thr Gly Met Arg Asp
 340 345 350

Ser Met Asn Thr Glu Val Lys Ser Gly Leu Lys Glu Gly Asp Lys Val
 355 360 365

Val Ile Ser Glu Ile Thr Ala Ala Glu Gln Gln Glu Ser Gly Glu Arg
 370 375 380

Ala Leu Gly Gly Pro Pro Arg Arg
 385 390

<210> 767

<211> 1005
 <212> DNA
 <213> Neisseria meningitidis

<400> 767
 gtatcggtcg ggcgcgaggc atcggggcag attaagatac tttatgtcaa actcgggcaa 60
 cagggttaaaa agggcgattt gattgcggaa atcaattcga cctcgcagac caatacgctc 120
 aatacggaaa aatccaagtt ggaaacgtat caggcgaagc tgggtgtcggc acagattgca 180
 ttgggcagcg cggagaagaa atataagcgt caggcggcgt tatggaagga aaacgcgact 240
 tccaaagagg atttggaaag cgcgcaggat gcgtttgccg ccgccaaagc caatgttgcc 300
 gagctgaagg ctttaatcag acagagcaaa atttccatca ataccgccga gtcggaattg 360
 ggctacacgc gcattaccgc aacgatggac ggcacgggtg tggcgattct cgtggaagag 420
 gggcagactg tgaacgcggc gcagtctacg ccgacgattg tccaattggc gaatctggat 480
 atgatgttga acaaaatgca gattgccgag ggcgatatta ccaaggtgaa ggcggggcag 540
 gatatttcgt ttacgatttt gtccgaaccg gatacgccga ttaaggcgaa gctcgacagc 600
 gtcgaccccg ggctgaccac gatgtcgtcg ggcgggttaca acagcagtag ggatacggct 660
 tccaatgcgg tctactatta tgcccgttcg tttgtgccga atccggacgg caaactcgcc 720
 acggggatga cgcgcagaa tacggttgaa atcgacggcg tgaaaaatgt gctgattatt 780
 ccgtcgtga cgtgaaaaa tcgcggcggc aaggcgtttg tgcgcgtgtt ggggtgcggac 840
 ggcaaggcgg cggaacgcga aatccggacc ggtatgagag acagtatgaa taccgaagta 900
 aaaagcgggt tgaaagaggg ggacaaagtg gtcattctcg aaataaccgc cgccgagcaa 960
 caggaaagcg gcgaacgcgc cctaggcggc ccgccgcgcc gataa 1005

<210> 768
 <211> 334
 <212> PRT
 <213> Neisseria meningitidis

<400> 768
 Val Ser Val Gly Ala Gln Ala Ser Gly Gln Ile Lys Ile Leu Tyr Val
 1 5 10 15
 Lys Leu Gly Gln Gln Val Lys Lys Gly Asp Leu Ile Ala Glu Ile Asn
 20 25 30
 Ser Thr Ser Gln Thr Asn Thr Leu Asn Thr Glu Lys Ser Lys Leu Glu
 35 40 45
 Thr Tyr Gln Ala Lys Leu Val Ser Ala Gln Ile Ala Leu Gly Ser Ala
 50 55 60
 Glu Lys Lys Tyr Lys Arg Gln Ala Ala Leu Trp Lys Glu Asn Ala Thr
 65 70 75 80
 Ser Lys Glu Asp Leu Glu Ser Ala Gln Asp Ala Phe Ala Ala Ala Lys
 85 90 95
 Ala Asn Val Ala Glu Leu Lys Ala Leu Ile Arg Gln Ser Lys Ile Ser
 100 105 110
 Ile Asn Thr Ala Glu Ser Glu Leu Gly Tyr Thr Arg Ile Thr Ala Thr
 115 120 125
 Met Asp Gly Thr Val Val Ala Ile Leu Val Glu Glu Gly Gln Thr Val
 130 135 140

Asn Ala Ala Gln Ser Thr Pro Thr Ile Val Gln Leu Ala Asn Leu Asp
 145 150 155 160
 Met Met Leu Asn Lys Met Gln Ile Ala Glu Gly Asp Ile Thr Lys Val
 165 170 175
 Lys Ala Gly Gln Asp Ile Ser Phe Thr Ile Leu Ser Glu Pro Asp Thr
 180 185 190
 Pro Ile Lys Ala Lys Leu Asp Ser Val Asp Pro Gly Leu Thr Thr Met
 195 200 205
 Ser Ser Gly Gly Tyr Asn Ser Ser Thr Asp Thr Ala Ser Asn Ala Val
 210 215 220
 Tyr Tyr Tyr Ala Arg Ser Phe Val Pro Asn Pro Asp Gly Lys Leu Ala
 225 230 235 240
 Thr Gly Met Thr Thr Gln Asn Thr Val Glu Ile Asp Gly Val Lys Asn
 245 250 255
 Val Leu Ile Ile Pro Ser Leu Thr Val Lys Asn Arg Gly Gly Lys Ala
 260 265 270
 Phe Val Arg Val Leu Gly Ala Asp Gly Lys Ala Ala Glu Arg Glu Ile
 275 280 285
 Arg Thr Gly Met Arg Asp Ser Met Asn Thr Glu Val Lys Ser Gly Leu
 290 295 300
 Lys Glu Gly Asp Lys Val Val Ile Ser Glu Ile Thr Ala Ala Glu Gln
 305 310 315 320
 Gln Glu Ser Gly Glu Arg Ala Leu Gly Gly Pro Pro Arg Arg
 325 330

<210> 769
 <211> 1179
 <212> DNA
 <213> Neisseria meningitidis

<400> 769
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 ggatggtctt atctgaagcc cgagccgcag gctgcttata ttacggaaac ggtcaggcgc 120

ggcgacatca gccggacggt ttctgcaaca ggggagattt cgccgtccaa cctggtatcg 180
 gtgcggcgcg aggcacgagg gcagattaag aaactttatg tcaaaactcg gcaacagggt 240
 aaaaaggggc atttgattgc ggaaatcaat tcgacctcgc agaccaatac gctcaatacg 300
 gaaaaatcca aattggaaac gtatcaggcg aagctggtgt cggcacagat tgcattgggc 360
 agcgcggaga agaaatataa gcgtcaggcg gcgttggtga aggatgatgc gaccgctaaa 420
 gaagatttgg aaagcgcaca ggatgcgctt gccgccgcca aagccaatgt tgccgagctg 480
 aaggctctaa tcagacagag caaaatttcc atcaataacc cagagtcgga attgggctac 540
 acgcgcatta ccgcaacgat ggacggcacg gtggtggcga ttctcgtgga agaggggcag 600
 actgtgaacg cggcgcagtc tacgccgacg attgtccaat tggcgaatct ggatatgatg 660
 ttgaacaaaa tgcagattgc cgagggcgat attaccaagg tgaaggcggg gcaggatatt 720
 tcgtttacga ttttgtccga accggatacg ccgattaagg cgaagctcga cagcgtcgac 780

cccgggctga ccacgatgtc gtcggggcggc tacaacagca gtacgggatac ggcttccaat	840
gcgggtctact attatgcccg ttcgtttgtg ccgaatccgg acggcaaact cgccacgggg	900
atgacgacgc agaatacggg tgaaatcgac ggtgtgaaaa atgtgctgat tattccgtcg	960
ctgaccgtga aaaatcgcg cggcaggcg tttgtgcgcg tgttgggtgc agacggcaag	1020
gcggcggaac gcgaaatccg gaccgggtatg agagacagta tgaataccga agtaaaaagc	1080
gggttgaaag agggggacaa agtgggtcatc tccgaaataa ccgccgccga gcagcaggaa	1140
agcggcggaac gcgccctagg cggcccgccg cgccgataa	1179

<210> 770
 <211> 392
 <212> PRT
 <213> Neisseria meningitidis

<400> 770
 Met Ala Lys Met Met Lys Trp Ala Ala Val Ala Ala Val Ala Ala Ala
 1 5 10 15
 Ala Val Trp Gly Gly Trp Ser Tyr Leu Lys Pro Glu Pro Gln Ala Ala
 20 25 30
 Tyr Ile Thr Glu Thr Val Arg Arg Gly Asp Ile Ser Arg Thr Val Ser
 35 40 45
 Ala Thr Gly Glu Ile Ser Pro Ser Asn Leu Val Ser Val Gly Ala Gln
 50 55 60
 Ala Ser Gly Gln Ile Lys Lys Leu Tyr Val Lys Leu Gly Gln Gln Val
 65 70 75 80
 Lys Lys Gly Asp Leu Ile Ala Glu Ile Asn Ser Thr Ser Gln Thr Asn
 85 90 95
 Thr Leu Asn Thr Glu Lys Ser Lys Leu Glu Thr Tyr Gln Ala Lys Leu
 100 105 110
 Val Ser Ala Gln Ile Ala Leu Gly Ser Ala Glu Lys Lys Tyr Lys Arg
 115 120 125
 Gln Ala Ala Leu Trp Lys Asp Asp Ala Thr Ala Lys Glu Asp Leu Glu
 130 135 140
 Ser Ala Gln Asp Ala Leu Ala Ala Ala Lys Ala Asn Val Ala Glu Leu
 145 150 155 160
 Lys Ala Leu Ile Arg Gln Ser Lys Ile Ser Ile Asn Thr Ala Glu Ser
 165 170 175
 Glu Leu Gly Tyr Thr Arg Ile Thr Ala Thr Met Asp Gly Thr Val Val
 180 185 190
 Ala Ile Leu Val Glu Glu Gly Gln Thr Val Asn Ala Ala Gln Ser Thr
 195 200 205
 Pro Thr Ile Val Gln Leu Ala Asn Leu Asp Met Met Leu Asn Lys Met
 210 215 220

Gln Ile Ala Glu Gly Asp Ile Thr Lys Val Lys Ala Gly Gln Asp Ile
 225 230 235 240
 Ser Phe Thr Ile Leu Ser Glu Pro Asp Thr Pro Ile Lys Ala Lys Leu
 245 250 255
 Asp Ser Val Asp Pro Gly Leu Thr Thr Met Ser Ser Gly Gly Tyr Asn
 260 265 270
 Ser Ser Thr Asp Thr Ala Ser Asn Ala Val Tyr Tyr Tyr Ala Arg Ser
 275 280 285
 Phe Val Pro Asn Pro Asp Gly Lys Leu Ala Thr Gly Met Thr Thr Gln
 290 295 300
 Asn Thr Val Glu Ile Asp Gly Val Lys Asn Val Leu Ile Ile Pro Ser
 305 310 315 320
 Leu Thr Val Lys Asn Arg Gly Gly Arg Ala Phe Val Arg Val Leu Gly
 325 330 335
 Ala Asp Gly Lys Ala Ala Glu Arg Glu Ile Arg Thr Gly Met Arg Asp
 340 345 350
 Ser Met Asn Thr Glu Val Lys Ser Gly Leu Lys Glu Gly Asp Lys Val
 355 360 365
 Val Ile Ser Glu Ile Thr Ala Ala Glu Gln Gln Glu Ser Gly Glu Arg
 370 375 380
 Ala Leu Gly Gly Pro Pro Arg Arg
 385 390

<210> 771
 <211> 1179
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 771
 atggcaaaaa tgatgaaatg ggcggctggt gcggcggtcg cggcggcaac ggtttggggc 60
 ggatggtctt atctgaagcc cgaaccgcag gctgcttata ttacggaaac ggtcaggcgc 120
 ggcgatatca gccggacggt ttccgcgcag ggcgagattt cgccgtccaa cctggtatcg 180
 gtcggcgcgc aggccttcggg gcagattaaa aagctttatg tcaaaactcg gcaacaggtc 240
 aaaaagggcg atttgattgc ggaaatcaat tcgaccacgc agaccaacac gatcgatatg 300
 gaaaaatcca aattggaaac gtatcaggcg aagctggtgt cggcacagat tgcattgggc 360

 agcgcggaga agaaatataa gcgtcaggcg gcgttgtgga aggatgatgc gacctctaaa 420
 gaagatttgg aaagcgcgca ggatgcgctt gccgccgcca aagccaatgt tgccgagttg 480
 aaggctttta tcagacagag caaaatttcc atcaataacc cagagtcgga tttgggctac 540
 acgcgcatta ccgcgcagat ggacggcacg gtggtggcga ttcccgtgga agaggggcag 600
 actgtgaacg cggcgcagtc tacgccgacg attgtccaat tggcgaatct ggatatgatg 660
 ttgaacaaaa tgcagattgc cgagggcgag attaccaagg tgaaggcggg gcaggatatt 720
 tcgtttacga ttttgtccga accggatacg ccgattaagg cgaagctcga cagcgtcgac 780
 cccgggctga ccacgatgtc gtcgggcggc tacaacagca gtacggatac ggcttccaat 840
 gcggtctatt attatgcccg ttcgtttgtg ccgaatccgg acggcaaact cgccacgggg 900

atgacgacgc agaatacggg tgaaatcgac ggtgtgaaaa atgtgttgct tattccgctcg 960
 ctgaccgtga aaaatcgcg cggaaggcg ttcgtacgcg tggtgggtgc ggacggcaag 1020
 gcagtggaaac gcgaaatccg gaccggtatg aaagacagta tgaataccga agtgaaaagc 1080
 gggttgaaag aggggggacaa agtgggtcatc tccgaaataa ccgccgccga gcagcaggaa 1140
 agcggcgaac gcgccctagg cggcccgccg cgccgataa 1179

<210> 772
 <211> 392
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 772
 Met Ala Lys Met Met Lys Trp Ala Ala Val Ala Ala Val Ala Ala Ala
 1 5 10 15
 Ala Val Trp Gly Gly Trp Ser Tyr Leu Lys Pro Glu Pro Gln Ala Ala
 20 25 30
 Tyr Ile Thr Glu Ala Val Arg Arg Gly Asp Ile Ser Arg Thr Val Ser
 35 40 45
 Ala Thr Gly Glu Ile Ser Pro Ser Asn Leu Val Ser Val Gly Ala Gln
 50 55 60
 Ala Ser Gly Gln Ile Lys Lys Leu Tyr Val Lys Leu Gly Gln Gln Val
 65 70 75 80
 Lys Lys Gly Asp Leu Ile Ala Glu Ile Asn Ser Thr Thr Gln Thr Asn
 85 90 95
 Thr Ile Asp Met Glu Lys Ser Lys Leu Glu Thr Tyr Gln Ala Lys Leu
 100 105 110
 Val Ser Ala Gln Ile Ala Leu Gly Ser Ala Glu Lys Lys Tyr Lys Arg
 115 120 125
 Gln Ala Ala Leu Trp Lys Asp Asp Ala Thr Ser Lys Glu Asp Leu Glu
 130 135 140
 Ser Ala Gln Asp Ala Leu Ala Ala Ala Lys Ala Asn Val Ala Glu Leu
 145 150 155 160
 Lys Ala Leu Ile Arg Gln Ser Lys Ile Ser Ile Asn Thr Ala Glu Ser
 165 170 175
 Asp Leu Gly Tyr Thr Arg Ile Thr Ala Thr Met Asp Gly Thr Val Val
 180 185 190
 Ala Ile Pro Val Glu Glu Gly Gln Thr Val Asn Ala Ala Gln Ser Thr
 195 200 205
 Pro Thr Ile Val Gln Leu Ala Asn Leu Asp Met Met Leu Asn Lys Met
 210 215 220
 Gln Ile Ala Glu Gly Asp Ile Thr Lys Val Lys Ala Gly Gln Asp Ile
 225 230 235 240

Ser Phe Thr Ile Leu Ser Glu Pro Asp Thr Pro Ile Lys Ala Lys Leu
 245 250 255
 Asp Ser Val Asp Pro Gly Leu Thr Thr Met Ser Ser Gly Gly Tyr Asn
 260 265 270
 Ser Ser Thr Asp Thr Ala Ser Asn Ala Val Tyr Tyr Tyr Ala Arg Ser
 275 280 285
 Phe Val Pro Asn Pro Asp Gly Lys Leu Ala Thr Gly Met Thr Thr Gln
 290 295 300
 Asn Thr Val Glu Ile Asp Gly Val Lys Asn Val Leu Leu Ile Pro Ser
 305 310 315 320
 Leu Thr Val Lys Asn Arg Gly Gly Lys Ala Phe Val Arg Val Leu Gly
 325 330 335
 Ala Asp Gly Lys Ala Val Glu Arg Glu Ile Arg Thr Gly Met Lys Asp
 340 345 350
 Ser Met Asn Thr Glu Val Lys Ser Gly Leu Lys Glu Gly Asp Lys Val
 355 360 365
 Val Ile Ser Glu Ile Thr Ala Ala Glu Gln Gln Glu Ser Gly Glu Arg
 370 375 380
 Ala Leu Gly Gly Pro Pro Arg Arg
 385 390

<210> 773
 <211> 555
 <212> DNA
 <213> Neisseria meningitidis

<400> 773
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 aaagtgccgc tatacaatat ccgtttcgag tccggcggta cggttgtcgg caataccctg 120
 caccctacct actatagaga catacgcagg ggcaaaactgt atgcggaagc caaattcgcc 180
 gacggcagcg taacttacgg caaagcgggc gagagcaaaa ccgagcaaag cccaaggct 240
 atggatttgt tcacgcttgc ctggcagttg gcggcaaact acgcgaaact cccccgggg 300
 ctgaaaatca ccaacggcaa aaaactttat tccgtcggcg gtttgaataa ggcgggtaca 360
 ggaaaataca gcataggcgg cgtggaaacc gaagtcgtca aatatcgggt gcggcgcggc 420
 gacgatgcgg taatgtattt cttcgcaccg tccctgaaca atattccggc acaaacggc 480
 tataccgacg acggcaaaac ctatacgctg aaactcaa atcgggtgcagat caacggccag 540
 gcagccaaac cgtaa 555

<210> 774
 <211> 184
 <212> PRT
 <213> Neisseria meningitidis

<400> 774
 Ile Pro Ala Thr Met Thr Phe Glu Arg Ser Gly Asn Ala Tyr Lys Ile

1 5 10 15
 Val Ser Thr Ile Lys Val Pro Leu Tyr Asn Ile Arg Phe Glu Ser Gly
 20 25 30
 Gly Thr Val Val Gly Asn Thr Leu His Pro Thr Tyr Tyr Arg Asp Ile
 35 40 45
 Arg Arg Gly Lys Leu Tyr Ala Glu Ala Lys Phe Ala Asp Gly Ser Val
 50 55 60
 Thr Tyr Gly Lys Ala Gly Glu Ser Lys Thr Glu Gln Ser Pro Lys Ala
 65 70 75 80
 Met Asp Leu Phe Thr Leu Ala Trp Gln Leu Ala Ala Asn Asp Ala Lys
 85 90 95
 Leu Pro Pro Gly Leu Lys Ile Thr Asn Gly Lys Lys Leu Tyr Ser Val
 100 105 110
 Gly Gly Leu Asn Lys Ala Gly Thr Gly Lys Tyr Ser Ile Gly Gly Val
 115 120 125
 Glu Thr Glu Val Val Lys Tyr Arg Val Arg Arg Gly Asp Asp Ala Val
 130 135 140
 Met Tyr Phe Phe Ala Pro Ser Leu Asn Asn Ile Pro Ala Gln Ile Gly
 145 150 155 160
 Tyr Thr Asp Asp Gly Lys Thr Tyr Thr Leu Lys Leu Lys Ser Val Gln
 165 170 175
 Ile Asn Gly Gln Ala Ala Lys Pro
 180

<210> 775
 <211> 672
 <212> DNA
 <213> Neisseria meningitidis

<400> 775
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 gcgtatgcgg cagggctgcc ccaatccgcc gtgctgcact attccggcag ctacggcatt 120
 cccgccacga tgacatttga acgcagcggc aatgcttaca aaatcgtttc gacgattaaa 180
 gtgccgctat acaatatccg ttctgagtcg gccgggtacgg ttgtcggcaa taccctgcac 240
 cctacctact atagagacat acgcaggggc aaactgtatg cggaagccaa attcggcgac 300
 ggcagcgtaa cttacggcaa agcggggcgag agcaaaaccg agcaaaagccc caaggctatg 360
 gatttgttca cgcttgctg gcagttggcg gcaaatgacg cgaaactccc cccggggctg 420
 aaaatcacca acggcaaaaa actttatttc gtcggcggtt tgaataaggc ggggtacagga 480

 aaatacagca taggcggcgt ggaaaccgaa gtcgtcaa atcggggtgcg gcgcggcgac 540
 gatgcggtaa tgtatttctt cgcaccgtcc ctgaacaata ttccggcaca aatcggtat 600
 accgacgacg gcaaaacctt tacgctgaaa ctcaaatcgg tgcagatcaa cgccaggca 660
 gccaaaccgt aa 672

<210> 776

<211> 223
 <212> PRT
 <213> Neisseria meningitidis

 <400> 776
 Met Met Lys Thr Phe Lys Asn Ile Phe Ser Ala Ala Ile Leu Ser Ala
 1 5 10 15
 Ala Leu Pro Cys Ala Tyr Ala Ala Gly Leu Pro Gln Ser Ala Val Leu
 20 25 30
 His Tyr Ser Gly Ser Tyr Gly Ile Pro Ala Thr Met Thr Phe Glu Arg
 35 40 45
 Ser Gly Asn Ala Tyr Lys Ile Val Ser Thr Ile Lys Val Pro Leu Tyr
 50 55 60
 Asn Ile Arg Phe Glu Ser Gly Gly Thr Val Val Gly Asn Thr Leu His
 65 70 75 80
 Pro Thr Tyr Tyr Arg Asp Ile Arg Arg Gly Lys Leu Tyr Ala Glu Ala
 85 90 95
 Lys Phe Ala Asp Gly Ser Val Thr Tyr Gly Lys Ala Gly Glu Ser Lys
 100 105 110
 Thr Glu Gln Ser Pro Lys Ala Met Asp Leu Phe Thr Leu Ala Trp Gln
 115 120 125
 Leu Ala Ala Asn Asp Ala Lys Leu Pro Pro Gly Leu Lys Ile Thr Asn
 130 135 140
 Gly Lys Lys Leu Tyr Ser Val Gly Gly Leu Asn Lys Ala Gly Thr Gly
 145 150 155 160
 Lys Tyr Ser Ile Gly Gly Val Glu Thr Glu Val Val Lys Tyr Arg Val
 165 170 175
 Arg Arg Gly Asp Asp Ala Val Met Tyr Phe Phe Ala Pro Ser Leu Asn
 180 185 190
 Asn Ile Pro Ala Gln Ile Gly Tyr Thr Asp Asp Gly Lys Thr Tyr Thr
 195 200 205
 Leu Lys Leu Lys Ser Val Gln Ile Asn Gly Gln Ala Ala Lys Pro
 210 215 220

<210> 777
 <211> 672
 <212> DNA

<213> Neisseria meningitidis

<220>
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 <222> (82)..(82)

<223> N= Unknown

<220>

<221> misc_feature

<222> (129)..(129)

<223> N= Unknown

<220>

<221> misc_feature

<222> (131)..(132)

<223> N= Unknown

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<222> (134)..(135)

<223> N= Unknown

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<221> misc_feature

<222> (137)..(138)

<223> N= Unknown

<220>

<221> misc_feature

<222> (140)..(140)

<223> N= Unknown

<220>

<221> misc_feature

<222> (143)..(145)

<223> N= Unknown

<220>

<221> misc_feature

<222> (147)..(147)

<223> N= Unknown

<220>

<221> misc_feature

<222> (149)..(149)

<223> N= Unknown

<220>

<221> misc_feature

<222> (158)..(158)

<223> N= Unknown

<220>

<221> misc_feature

<222> (326)..(330)

<223> N= Unknown

<220>

<221> misc_feature

<222> (332)..(332)

<223> N= Unknown

<220>
 <221> misc_feature
 <222> (334)..(339)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (341)..(341)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (378)..(378)
 <223> N= Unknown

<400> 777
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 cccgccacna nnanntnngn acnnngngnc aatgcttnca aaatcgtttc gacgattaaa 180
 gtgccgctat acaatatccg tttcgagtcc ggcgggtacgg ttgtcggcaa taccctgcac 240
 cctacctact atagagacat acgcaggggc aaactgtatg cggaagccaa attcggcgac 300
 ggcagcgtaa cctacggcaa agcggnnnnn ancnnnnnng ngcaaagccc caaggctatg 360
 gatttgttca cgcttgcntg gcagttggcg gcaaattgacg cgaaactccc cccggggctg 420
 aaaatcacca acggcaaaaa actttattcc gtcggcggtt tgaataaggc ggggtacagga 480
 aaatacagca taggcggcgt ggaaaccgaa gtcgtcaa atcggggtgc gcgcggcgac 540
 gatgcggtaa tgtatttctt cgcaccgtcc ctgaacaata ttccggcaca aatcggtat 600
 accgacgacg gcaaaaccta tacgctgaaa ctcaaatcgg tgcagatcaa cggccaggca 660
 gccaaaccgt aa 672

<210> 778
 <211> 223
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (28)..(28)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (44)..(50)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (53)..(53)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature

<222> (109)..(114)
 <223> Xaa= any amino acid

<400> 778
Met Met Lys Thr Phe Lys Asn Ile Phe Ser Ala Ala Ile Leu Ser Ala
1 5 10 15
Ala Leu Pro Cys Ala Tyr Ala Ala Gly Leu Pro Xaa Ser Ala Val Leu
20 25 30
His Tyr Ser Gly Ser Tyr Gly Ile Pro Ala Thr Xaa Xaa Xaa Xaa Xaa
35 40 45
Xaa Xaa Asn Ala Xaa Lys Ile Val Ser Thr Ile Lys Val Pro Leu Tyr
50 55 60
Asn Ile Arg Phe Glu Ser Gly Gly Thr Val Val Gly Asn Thr Leu His
65 70 75 80
Pro Thr Tyr Tyr Arg Asp Ile Arg Arg Gly Lys Leu Tyr Ala Glu Ala
85 90 95
Lys Phe Ala Asp Gly Ser Val Thr Tyr Gly Lys Ala Xaa Xaa Xaa Xaa
100 105 110
Xaa Xaa Gln Ser Pro Lys Ala Met Asp Leu Phe Thr Leu Ala Trp Gln
115 120 125
Leu Ala Ala Asn Asp Ala Lys Leu Pro Pro Gly Leu Lys Ile Thr Asn
130 135 140
Gly Lys Lys Leu Tyr Ser Val Gly Gly Leu Asn Lys Ala Gly Thr Gly
145 150 155 160
Lys Tyr Ser Ile Gly Gly Val Glu Thr Glu Val Val Lys Tyr Arg Val
165 170 175
Arg Arg Gly Asp Asp Ala Val Met Tyr Phe Phe Ala Pro Ser Leu Asn
180 185 190
Asn Ile Pro Ala Gln Ile Gly Tyr Thr Asp Asp Gly Lys Thr Tyr Thr
195 200 205
Leu Lys Leu Lys Ser Val Gln Ile Asn Gly Gln Ala Ala Lys Pro
210 215 220

<210> 779
<211> 672
<212> DNA
<213> Neisseria gonorrhoeae

<400> 779
atgatgaaga cttttaaaaa tatatatttcc gccgccattt tgtccgccgc cctgccgtgc 60
gcgtatgcgg caaggtacc ccaatccgcc gtgctgcact attccggcag ctacggcatt 120
cccgccacga tgacatttga acgcagcggc aatgcttaca aaatcgtttc gacgattaaa 180
gtgccgctat acaatatccg ttctgaatcc ggcggtacgg ttgtcggcaa taccctgcac 240

cctgcctact ataaagacat acgcagggggc aaactgtatg cggaagccaa attcggccgac 300
ggcagcgtaa cctacggcaa agcggggcgag agcaaaaccg agcaaagccc caaggctatg 360

gatttgttca cgcttgctg gcagttggcg gcaaatacgc cgaaactccc cccgggtctg 420
 aaaatcacca acggcaaaaa actttattcc gtcggcgccg tgaataaggc ggggtacggga 480
 aaatacagca taggcggcgt ggaaaccgaa gtcgtcaa atcggggtgc gcgcggcgac 540
 gatacggtaa cgtatttctt cgcaccgtcc ctgaacaata ttccggcaca aatcggtat 600
 accgacgacg gcaaaaccta tacgctgaag ctcaaatacg tgcagatcaa cggacaggcc 660
 gccaaaccgt aa 672

<210> 780

<211> 223

<212> PRT

<213> Neisseria gonorrhoeae

<400> 780

Met Met Lys Thr Phe Lys Asn Ile Phe Ser Ala Ala Ile Leu Ser Ala
 1 5 10 15

Ala Leu Pro Cys Ala Tyr Ala Ala Arg Leu Pro Gln Ser Ala Val Leu
 20 25 30

His Tyr Ser Gly Ser Tyr Gly Ile Pro Ala Thr Met Thr Phe Glu Arg
 35 40 45

Ser Gly Asn Ala Tyr Lys Ile Val Ser Thr Ile Lys Val Pro Leu Tyr
 50 55 60

Asn Ile Arg Phe Glu Ser Gly Gly Thr Val Val Gly Asn Thr Leu His
 65 70 75 80

Pro Ala Tyr Tyr Lys Asp Ile Arg Arg Gly Lys Leu Tyr Ala Glu Ala
 85 90 95

Lys Phe Ala Asp Gly Ser Val Thr Tyr Gly Lys Ala Gly Glu Ser Lys
 100 105 110

Thr Glu Gln Ser Pro Lys Ala Met Asp Leu Phe Thr Leu Ala Trp Gln
 115 120 125

Leu Ala Ala Asn Asp Ala Lys Leu Pro Pro Gly Leu Lys Ile Thr Asn
 130 135 140

Gly Lys Lys Leu Tyr Ser Val Gly Gly Leu Asn Lys Ala Gly Thr Gly
 145 150 155 160

Lys Tyr Ser Ile Gly Gly Val Glu Thr Glu Val Val Lys Tyr Arg Val
 165 170 175

Arg Arg Gly Asp Asp Thr Val Thr Tyr Phe Phe Ala Pro Ser Leu Asn
 180 185 190

Asn Ile Pro Ala Gln Ile Gly Tyr Thr Asp Asp Gly Lys Thr Tyr Thr
 195 200 205

Leu Lys Leu Lys Ser Val Gln Ile Asn Gly Gln Ala Ala Lys Pro
 210 215 220

<210> 781

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<211> 468
<212> DNA
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (51)..(51)
<223> N= Unknown

<400> 781
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gtgctggcgt atgtattgga ccctttggtc gaatgggtgc agaaaaaggg tttgaaccgt 180
gcatccgctt cgatgtctgt gatgggtgtt tccttgattt tgttggtggc attattgttg 240
attatcgctc ctatgctggg cgggcagttc aacaatttgg catcgcgcct gcccgaatta 300
atcgggttta tgcagaacac gctgctgccg tggttgaaaa atacaatcgg cggatatgtg 360
gaaatcgatc aggcatttat tattgcgtgg cttcaggcgc atacgggaga gttgagcaac 420
gcgcttaagg cgtgggtttcc cgttttgatg aggcagggcg gcaatatt 468

<210> 782
<211> 156
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (17)..(17)
<223> Xaa= any amino acid

<400> 782
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1 5 10 15

Xaa Ala Phe Ala Ala Leu Val Trp Leu Val Phe Ala Leu Gly Asp Thr
20 25 30

Leu Thr Pro Phe Ala Val Ala Ala Val Leu Ala Tyr Val Leu Asp Pro
35 40 45

Leu Val Glu Trp Leu Gln Lys Lys Gly Leu Asn Arg Ala Ser Ala Ser
50 55 60

Met Ser Val Met Val Phe Ser Leu Ile Leu Leu Leu Ala Leu Leu Leu
65 70 75 80

Ile Ile Val Pro Met Leu Val Gly Gln Phe Asn Asn Leu Ala Ser Arg
85 90 95

Leu Pro Gln Leu Ile Gly Phe Met Gln Asn Thr Leu Leu Pro Trp Leu
100 105 110

Lys Asn Thr Ile Gly Gly Tyr Val Glu Ile Asp Gln Ala Ser Ile Ile
115 120 125

Ala Trp Leu Gln Ala His Thr Gly Glu Leu Ser Asn Ala Leu Lys Ala

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130 135 140

Trp Phe Pro Val Leu Met Arg Gln Gly Gly Asn Ile
145 150 155

<210> 783
<211> 1071
<212> DNA
<213> *Neisseria meningitidis*

<400> 783
atgtatcggg ggaagggcg gggcatcaag ccgtggatgg gtgccgggtgc ggcgtttgcc 60
gccttggtct ggctggtttt cgcgctcggc gatactttga ctccgtttgc ggttgccggcg 120
gtgctggcgt atgtattgga ccctttggtc gaatggttgc agaaaaaggg tttgaaccgt 180
gcatccgctt cgatgtctgt gatgggtgtt tccttgattt tgttggtggc attattgttg 240
attatcgctc ctatgctggg cgggcagttc aacaatttgg catcgcgcct gcccgaatta 300
atcgggtttta tgcagaacac gctgctgccg tgggtgaaaa atacaatcgg cggatatgtg 360
gaaatcgatc aggcattctat tattgcgtgg cttcaggcgc atacgggaga gttgagcaac 420
gcgcttaagg cgtgggtttcc cgttttgatg aggcaggcg gcaatattgt cagcagatc 480
ggcaacctgc tgctgcttcc cttgctgctt tactatttcc tgctggattg gcagcgggtg 540
tcgtgcggca ttgccaaact ggttccgagg cgttttgccg gtgcttatac gcgcattaca 600
ggcaatttga acgaggtatt gggcgaattt ttgcgcgggc agcttctggt aatgctgatt 660
atgggcttgg tttacggttt gggattgggt ctggctcggc tggattcggg gtttgccatc 720
ggtatgcttg ccggtatttt ggtggttgct ccttatctcg gggcgtttac gggattgctg 780
cttgccaccg tcgcgcctt gctccagttc ggttcgtgga acggcatcct atcgggtttg 840
gcggtttttg ccgtaggaca gtttctcgaa agttttttca ttacgccgaa aatcgtggga 900
gaccgtatcg ggctgtcgcc gttttgggtt atcttttcgc tgatggcggt cgggcagctg 960
atgggctttg tcggaatgtt ggcgggattg cctttggccg ccgtaacctt ggtcttgctt 1020
cgcgaggggc tgcagaaata ttttgccggc agtttttacc ggggcaggta g 1071

<210> 784
<211> 356
<212> PRT
<213> *Neisseria meningitidis*

<400> 784
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Ala Ala Phe Ala Ala Leu Val Trp Leu Val Phe Ala Leu Gly Asp Thr
20 25 30
Leu Thr Pro Phe Ala Val Ala Ala Val Leu Ala Tyr Val Leu Asp Pro
35 40 45
Leu Val Glu Trp Leu Gln Lys Lys Gly Leu Asn Arg Ala Ser Ala Ser
50 55 60
Met Ser Val Met Val Phe Ser Leu Ile Leu Leu Leu Ala Leu Leu Leu
65 70 75 80
Ile Ile Val Pro Met Leu Val Gly Gln Phe Asn Asn Leu Ala Ser Arg
85 90 95
Leu Pro Gln Leu Ile Gly Phe Met Gln Asn Thr Leu Leu Pro Trp Leu
100 105 110

Lys Asn Thr Ile Gly Gly Tyr Val Glu Ile Asp Gln Ala Ser Ile Ile
 115 120 125
 Ala Trp Leu Gln Ala His Thr Gly Glu Leu Ser Asn Ala Leu Lys Ala
 130 135 140
 Trp Phe Pro Val Leu Met Arg Gln Gly Gly Asn Ile Val Ser Ser Ile
 145 150 155 160
 Gly Asn Leu Leu Leu Leu Pro Leu Leu Leu Tyr Tyr Phe Leu Leu Asp
 165 170 175
 Trp Gln Arg Trp Ser Cys Gly Ile Ala Lys Leu Val Pro Arg Arg Phe
 180 185 190
 Ala Gly Ala Tyr Thr Arg Ile Thr Gly Asn Leu Asn Glu Val Leu Gly
 195 200 205
 Glu Phe Leu Arg Gly Gln Leu Leu Val Met Leu Ile Met Gly Leu Val
 210 215 220
 Tyr Gly Leu Gly Leu Val Leu Val Gly Leu Asp Ser Gly Phe Ala Ile
 225 230 235 240
 Gly Met Leu Ala Gly Ile Leu Val Phe Val Pro Tyr Leu Gly Ala Phe
 245 250 255
 Thr Gly Leu Leu Leu Ala Thr Val Ala Ala Leu Leu Gln Phe Gly Ser
 260 265 270
 Trp Asn Gly Ile Leu Ser Val Trp Ala Val Phe Ala Val Gly Gln Phe
 275 280 285
 Leu Glu Ser Phe Phe Ile Thr Pro Lys Ile Val Gly Asp Arg Ile Gly
 290 295 300
 Leu Ser Pro Phe Trp Val Ile Phe Ser Leu Met Ala Phe Gly Gln Leu
 305 310 315 320
 Met Gly Phe Val Gly Met Leu Ala Gly Leu Pro Leu Ala Ala Val Thr
 325 330 335
 Leu Val Leu Leu Arg Glu Gly Val Gln Lys Tyr Phe Ala Gly Ser Phe
 340 345 350
 Tyr Arg Gly Arg
 355

<210> 785

<211> 1071

<212> DNA

<213> Neisseria meningitidis

<400> 785

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 gccttggtct ggctggtttt cgcgctcggc gatactttga ctccgtttgc ggttgcggcg 120

gtgctggcgt	atgtattgga	ccctttggtc	gaatgggtgc	agaaaaaggg	tttgaaccgt	180
gcatccgctt	cgatgtctgt	gatgggtgtt	tccttgattt	tggtgttggc	attattgttg	240
attattgtcc	ctatgctggg	cgggcagttc	aacaatttgg	catcgcgctt	gccccaat	300
atcggtttta	tgcagaacac	gctgctgccg	tggttgaaaa	atacaatcgg	cggatatgtg	360
gaaatcgatc	aggcatctat	tattgcgtgg	cttcaggcgc	atacgggcga	gttgagcaac	420
gcgcttaagg	cgtgggtttc	cgttttgatg	aggcagggcg	gcaatattgt	cagcagtatc	480
ggcaacctgc	tgctgcttcc	cttgctgctt	tactatttcc	tgctggattg	gcagcgggtg	540
tcgtgcggca	ttgccaaact	ggttccgagg	cgttttgcgc	gtgcttatac	gcgcattaca	600
ggcaatttga	acgaggtatt	gggcgaattt	ttgcgcgggc	agcttctggt	gatgctgatt	660
atgggttttg	tttacggctt	gggggttggtg	ctggctcgggc	tggttcggg	gtttgcaatc	720
ggtatggttg	cgggtatttt	ggtttttgtt	ccctatttgg	gcgcgtttac	aggactgctg	780
ctggcaaccg	tcgccgcctt	gctccagttc	ggttcgtgga	acggcatctt	ggctgttttg	840
gcggtttttg	ccgtaggaca	gtttctcgaa	agttttttca	ttacgccgaa	aatcgtggga	900
gaccgtatcg	gcctgtcgcc	gttttggtt	atcttttcgc	tgatggcggt	cgggcagctg	960
atgggctttg	tcggaatggt	ggccggattg	cctttggccg	ccgtaacctt	ggctctgctt	1020
cgcgagggcg	tgcagaaata	ttttgcgggc	agtttttacc	ggggcaggta	g	1071

<210> 786

<211> 356

<212> PRT

<213> Neisseria meningitidis

<400> 786

Met	Tyr	Arg	Arg	Lys	Gly	Arg	Gly	Ile	Lys	Pro	Trp	Met	Asp	Ala	Gly
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Ala	Ala	Phe	Ala	Ala	Leu	Val	Trp	Leu	Val	Phe	Ala	Leu	Gly	Asp	Thr
			20					25					30		
Leu	Thr	Pro	Phe	Ala	Val	Ala	Ala	Val	Leu	Ala	Tyr	Val	Leu	Asp	Pro
		35					40					45			
Leu	Val	Glu	Trp	Leu	Gln	Lys	Lys	Gly	Leu	Asn	Arg	Ala	Ser	Ala	Ser
	50					55					60				
Met	Ser	Val	Met	Val	Phe	Ser	Leu	Ile	Leu	Leu	Leu	Ala	Leu	Leu	Leu
65					70				75					80	
Ile	Ile	Val	Pro	Met	Leu	Val	Gly	Gln	Phe	Asn	Asn	Leu	Ala	Ser	Arg
				85				90						95	
Leu	Pro	Gln	Leu	Ile	Gly	Phe	Met	Gln	Asn	Thr	Leu	Leu	Pro	Trp	Leu
		100						105					110		
Lys	Asn	Thr	Ile	Gly	Gly	Tyr	Val	Glu	Ile	Asp	Gln	Ala	Ser	Ile	Ile
		115					120					125			
Ala	Trp	Leu	Gln	Ala	His	Thr	Gly	Glu	Leu	Ser	Asn	Ala	Leu	Lys	Ala
		130				135					140				
Trp	Phe	Pro	Val	Leu	Met	Arg	Gln	Gly	Gly	Asn	Ile	Val	Ser	Ser	Ile
145					150					155					160
Gly	Asn	Leu	Leu	Leu	Leu	Pro	Leu	Leu	Leu	Tyr	Tyr	Phe	Leu	Leu	Asp
			165					170						175	

Trp Gln Arg Trp Ser Cys Gly Ile Ala Lys Leu Val Pro Arg Arg Phe
 180 185 190
 Ala Gly Ala Tyr Thr Arg Ile Thr Gly Asn Leu Asn Glu Val Leu Gly
 195 200 205
 Glu Phe Leu Arg Gly Gln Leu Leu Val Met Leu Ile Met Gly Leu Val
 210 215 220
 Tyr Gly Leu Gly Leu Val Leu Val Gly Leu Asp Ser Gly Phe Ala Ile
 225 230 235 240
 Gly Met Val Ala Gly Ile Leu Val Phe Val Pro Tyr Leu Gly Ala Phe
 245 250 255
 Thr Gly Leu Leu Leu Ala Thr Val Ala Ala Leu Leu Gln Phe Gly Ser
 260 265 270
 Trp Asn Gly Ile Leu Ala Val Trp Ala Val Phe Ala Val Gly Gln Phe
 275 280 285
 Leu Glu Ser Phe Phe Ile Thr Pro Lys Ile Val Gly Asp Arg Ile Gly
 290 295 300
 Leu Ser Pro Phe Trp Val Ile Phe Ser Leu Met Ala Phe Gly Gln Leu
 305 310 315 320
 Met Gly Phe Val Gly Met Leu Ala Gly Leu Pro Leu Ala Ala Val Thr
 325 330 335
 Leu Val Leu Leu Arg Glu Gly Val Gln Lys Tyr Phe Ala Gly Ser Phe
 340 345 350
 Tyr Arg Gly Arg
 355

<210> 787
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N = Unknown

<400> 787
 nnnnnnnnn

8

<210> 788
 <211> 253
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 788

Met Tyr Arg Arg Lys Gly Arg Gly Ile Lys Pro Trp Met Gly Ala Gly

1 5 10 15
Ala Ala Phe Ala Ala Leu Val Trp Leu Val Tyr Ala Leu Gly Asp Thr
20 25 30
Leu Thr Pro Phe Ala Val Ala Ala Val Leu Ala Tyr Val Leu Asp Pro
35 40 45
Leu Val Glu Trp Leu Gln Lys Lys Gly Leu Asn Arg Ala Ser Ala Ser
50 55 60
Met Ser Val Met Val Phe Ser Leu Ile Leu Leu Leu Ala Leu Leu Leu
65 70 75 80
Ile Ile Val Pro Met Leu Val Gly Gln Phe Asn Asn Leu Ala Ser Arg
85 90 95
Leu Pro Gln Leu Ile Gly Phe Met Gln Asn Thr Leu Leu Pro Trp Leu
100 105 110
Lys Asn Thr Ile Gly Gly Tyr Val Glu Ile Asp Gln Ala Ser Ile Ile
115 120 125
Ala Trp Phe Gln Ala His Thr Gly Glu Leu Ser Asn Ala Leu Lys Ala
130 135 140
Trp Phe Pro Val Leu Met Lys Gln Gly Gly Asn Ile Val Ser Thr Ile
145 150 155 160
Gly Asn Leu Leu Leu Pro Pro Leu Leu Leu Tyr Tyr Phe Leu Leu Asp
165 170 175
Trp His Arg Trp Ser Cys Gly Ile Pro Lys Leu Val Pro Arg Arg Phe
180 185 190
Ala Gly Ala Tyr Thr Arg Ile Thr Gly Asn Leu Asn Lys Val Trp Gly
195 200 205
Lys Phe Leu Arg Gly Gln Leu Leu Gly Glu Thr Glu Arg Gly Ala Val
210 215 220
Val Cys Arg Val Gly Arg Glu Cys Trp Glu Gly Gly Gly Ala Arg Ser
225 230 235 240
Arg Pro Ser Asp Asp Gly Trp Pro Arg Trp Gly Gly Gly
245 250

<210> 789

<211> 1071

<212> DNA

<213> Neisseria gonorrhoeae

<400> 789

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gccttggtct	ggctggttta	cgcgctcggc	gatactttga	ctccgtttgc	ggttgcggcg	120
gtgctggcgt	atgtgttgga	ccctttggtc	gaatggttgc	agaaaaaggg	tttgaaccgt	180

gcatccgctt	cgatgtctgt	gatgggtgtt	tccttgattt	tgttggtggc	attattgttg	240
attattgtcc	ctatgctggg	cgggcagttc	aataatttgg	catctcgctt	gcccccaatta	300
atcgggttta	tgcagaacac	gctgctgccg	tggttgaaaa	atacaatcgg	cggatatgtg	360
gaaatcgatc	aggcatctat	tattgcgtgg	tttcaggcgc	atacgggcga	gttgagcaac	420
gcgcttaagg	cgtggtttcc	cgttttgatg	aaacagggcg	gcaatattgt	cagcagtatc	480
ggcaacctgc	tgctgccgcc	cttgctgctt	tactatttcc	tgctggattg	gcagcgggtg	540
tcgtgcggca	tcgccaaact	ggttccgagg	cgttttgccg	gtgcttatac	gcgcattacg	600
ggtaatttga	acgaggtatt	gggcgaattt	ttgcgcggtc	agcttctggt	gatgctgatt	660
atgggcttgg	tttacggttt	gggattgatg	ctagtcggac	tggattcggg	atttgccatc	720
ggtatggttg	ccggtatttt	ggtgtttgtc	ccctatttgg	gtgcgtttac	gggattgctg	780
cttgccactg	ttgcagcctt	gctccagttc	ggttcgtgga	acggaatctt	ggctgtttgg	840
gcggtttttg	ccgtcgggtc	gtttctcgaa	agttttttca	ttacgccgaa	aattgtagga	900
gaccgtatcg	gcctgtcgcc	gttttgggtt	atcttttcgc	tgatggcggt	cggagagctg	960
atgggctttg	tcggaatggt	ggccggattg	cctttggccg	ccgtaacctt	ggtcttgctt	1020
cgcgagggcg	cgcagaaata	ttttgccggc	agtttttacc	ggggcaggta	g	1071

<210> 790
 <211> 356
 <212> PRT
 <213> *Neisseria gonorrhoeae*

<400> 790
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 20 25 30
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 35 40 45
 Leu Val Glu Trp Leu Gln Lys Lys Gly Leu Asn Arg Ala Ser Ala Ser
 50 55 60
 Met Ser Val Met Val Phe Ser Leu Ile Leu Leu Leu Ala Leu Leu Leu
 65 70 75 80
 Ile Ile Val Pro Met Leu Val Gly Gln Phe Asn Asn Leu Ala Ser Arg
 85 90 95
 Leu Pro Gln Leu Ile Gly Phe Met Gln Asn Thr Leu Leu Pro Trp Leu
 100 105 110
 Lys Asn Thr Ile Gly Gly Tyr Val Glu Ile Asp Gln Ala Ser Ile Ile
 115 120 125
 Ala Trp Phe Gln Ala His Thr Gly Glu Leu Ser Asn Ala Leu Lys Ala
 130 135 140
 Trp Phe Pro Val Leu Met Lys Gln Gly Gly Asn Ile Val Ser Ser Ile
 145 150 155 160

Gly Asn Leu Leu Leu Pro Pro Leu Leu Leu Tyr Tyr Phe Leu Leu Asp
 165 170 175
 Trp Gln Arg Trp Ser Cys Gly Ile Ala Lys Leu Val Pro Arg Arg Phe
 180 185 190
 Ala Gly Ala Tyr Thr Arg Ile Thr Gly Asn Leu Asn Glu Val Leu Gly
 195 200 205
 Glu Phe Leu Arg Gly Gln Leu Leu Val Met Leu Ile Met Gly Leu Val
 210 215 220
 Tyr Gly Leu Gly Leu Met Leu Val Gly Leu Asp Ser Gly Phe Ala Ile
 225 230 235 240
 Gly Met Val Ala Gly Ile Leu Val Phe Val Pro Tyr Leu Gly Ala Phe
 245 250 255
 Thr Gly Leu Leu Leu Ala Thr Val Ala Ala Leu Leu Gln Phe Gly Ser
 260 265 270
 Trp Asn Gly Ile Leu Ala Val Trp Ala Val Phe Ala Val Gly Gln Phe
 275 280 285
 Leu Glu Ser Phe Phe Ile Thr Pro Lys Ile Val Gly Asp Arg Ile Gly
 290 295 300
 Leu Ser Pro Phe Trp Val Ile Phe Ser Leu Met Ala Phe Gly Glu Leu
 305 310 315 320
 Met Gly Phe Val Gly Met Leu Ala Gly Leu Pro Leu Ala Ala Val Thr
 325 330 335
 Leu Val Leu Leu Arg Glu Gly Ala Gln Lys Tyr Phe Ala Gly Ser Phe
 340 345 350
 Tyr Arg Gly Arg
 355

<210> 791
 <211> 546
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 791
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 gggaaaccgt atcaacaaac agccgccatc ttaacatttt tttgcacgtc ctgccccgcg 120
 cgttcaaagt cgtaccagca ataccgccgc ctgcgcctct atgccttcca tccgcccagag 180
 atagccgagt ttttcgttgg ttttgccctt gatgttgacg cagcaaagt ctatgcccaa 240
 atcggcgggc atgttggcac gcatttgccg aatgtgcggc gcgagtgtgg gtttctgtgc 300
 aatcacggtc gtatcgacat tgaccgcctg ccaaccctgc gcctgaacgc tttgatacgc 360
 cgcacgcaaa aggacgcggc tgtccgcac tttgaactct gcggcggtgt cggggaaatg 420
 gctgccgata tcgcccacac ctgccgcacc gagcagcgcg tcggtaacgg cgtgcagcag 480
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 tatcag 546

<210> 792
 <211> 182
 <212> PRT
 <213> Neisseria meningitidis

<220>
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 <222> (13)..(13)
 <223> Xaa= any amino acid

<400> 792
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 Phe Leu Ser Phe Gly Lys Pro Tyr Gln Gln Thr Ala Ala Ile Leu Thr
 20 25 30
 Phe Phe Cys Thr Ser Cys Pro Pro Arg Ser Asn Ala Tyr Gln Gln Tyr
 35 40 45
 Arg Arg Leu Arg Leu Tyr Ala Phe His Pro Pro Glu Ile Ala Glu Phe
 50 55 60
 Phe Val Gly Phe Ala Phe Asp Val Asp Ala Arg Asn Val Tyr Ala Gln
 65 70 75 80
 Ile Gly Gly Asp Val Gly Thr His Leu Arg Asn Val Arg Arg Glu Cys
 85 90 95
 Gly Phe Leu Cys Asn His Gly Arg Ile Asp Ile Asp Arg Leu Pro Thr
 100 105 110
 Leu Arg Leu Asn Ala Leu Ile Arg Arg Thr Gln Lys Asp Ala Ala Val
 115 120 125
 Arg Ile Phe Glu Leu Cys Gly Gly Val Gly Glu Met Ala Ala Asp Ile
 130 135 140
 Ala Gln Thr Cys Arg Thr Glu Gln Arg Val Gly Asn Gly Val Gln Gln
 145 150 155 160
 Arg Ile Gly Ile Gly Val Ser Glu Gln Pro Phe Phe Lys Trp Asp Phe
 165 170 175
 Asn Ser Ala Lys Tyr Gln
 180

<210> 793
 <211> 771
 <212> DNA
 <213> Neisseria meningitidis

<400> 793
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 tttttgccgc tcttacccaa ggcttcgatg aaaaagtga tggtcgagcc ggtaccgatg 120

ccgatatatt cattttcggg tacgaattcg actgcttttt cggcggcgat gcgcttgagt 180
tcgtcttggt tcgtcatatt tttgtccttt gggaaaccgt atcaacaaac agccgccatc 240
ttaacatttt ttgacgctc ctgcccgcg cgttcaaagt cgtaccagca ataccgccgc 300
ctgcgcctct atgccttcca tccgcccag atagccgagt ttttcggttg ttttgccctt 360
gatgttgacg cagcaaagt ctatgcccaa atcggcggcg atgttggcac gcatttgagg 420
aatgtgcggc gcgagtttg gtttctgtgc aatcacggtc gtatcgacat tgaccgcctg 480

ccaaccctgc gcctgaacgc tttgatacgc cgcacgcaaa aggacgcggc tgtccgcctc 540
tttgaactct gggcggtgt cggggaaatg gctgccgata tcgcccacac ctgccgcacc 600
gagcagcgcg tcggtaacgg cgtgcagcag cgcacggcca tcggagtgtc cgagcagccc 660
tttttcaaat gggatttcaa ctccgccaa tatcagcttt ctgccttcgg tcagttggtg 720
gacatcgtag ccctgtccga tacggatgtt cgtcatcggt tgtgttctg a 771

<210> 794

<211> 256

<212> PRT

<213> *Neisseria meningitidis*

<400> 794

Ile Ser Tyr Trp Ala Ser Ser Ser Pro Asp Phe Leu Glu Val Asp Thr
1 5 10 15

Ala Pro Leu Ile Phe Leu Pro Leu Leu Pro Lys Ala Ser Met Lys Lys
20 25 30

Leu Met Val Glu Pro Val Pro Met Pro Ile Tyr Ser Phe Ser Gly Thr
35 40 45

Asn Ser Thr Ala Phe Ser Ala Ala Met Arg Leu Ser Ser Ser Cys Val
50 55 60

Val Ile Phe Leu Ser Phe Gly Lys Pro Tyr Gln Gln Thr Ala Ala Ile
65 70 75 80

Leu Thr Phe Phe Cys Thr Ser Cys Pro Pro Arg Ser Asn Ala Tyr Gln
85 90 95

Gln Tyr Arg Arg Leu Arg Leu Tyr Ala Phe His Pro Pro Glu Ile Ala
100 105 110

Glu Phe Phe Val Gly Phe Ala Phe Asp Val Asp Ala Arg Asn Val Tyr
115 120 125

Ala Gln Ile Gly Gly Asp Val Gly Thr His Leu Arg Asn Val Arg Arg
130 135 140

Glu Phe Gly Phe Leu Cys Asn His Gly Arg Ile Asp Ile Asp Arg Leu
145 150 155 160

Pro Thr Leu Arg Leu Asn Ala Leu Ile Arg Arg Thr Gln Lys Asp Ala
165 170 175

Ala Val Arg Ile Phe Glu Leu Cys Gly Gly Val Gly Glu Met Ala Ala
180 185 190

Asp Ile Ala Gln Thr Cys Arg Thr Glu Gln Arg Val Gly Asn Gly Val

195 200 205
 Gln Gln Arg Ile Gly Ile Gly Val Ser Glu Gln Pro Phe Phe Lys Trp
 210 215 220
 Asp Phe Asn Ser Ala Lys Tyr Gln Leu Ser Ala Phe Gly Gln Leu Val
 225 230 235 240
 Asp Ile Val Ala Leu Ser Asp Thr Asp Val Arg His Arg Leu Cys Ser
 245 250 255

<210> 795
 <211> 771
 <212> DNA
 <213> Neisseria meningitidis

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 <222> (156)..(156)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (253)..(255)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (363)..(363)
 <223> N= Unknown

<400> 795
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 ccgatgtatt cgttttcggg tacgaattcg actgcntttt cggcggcgat gcgcttgagt 180
 tcgtcttggtg tcgtcatatt tttgtccttt gggaaaaccgt atcaacaaac agccgccatc 240
 ttaacatttt ttnnnacgtc ctgcccgcgc cgttcaaadc cttaccagca ataccgccgc 300
 ctgcgactct atgccttcca tgcgcccgcg ataaccgagt ttttcggttg ttttgccctt 360
 gangttgacg cacgaaatgt ctatgcccaa atcggcgggc atgttggcac gcatttgccg 420
 aatatgcggc gcgagtttggt gtttctgtgc aatcacggtc gtatcgacat tgaccgcctg 480
 ccaaccctgc gcctgaacgc tttgatacgc cgcacgcaaa aggacgcggc tgtccgcac 540
 tttgaactct gcggcggtgt cggggaaatg gctgccgata tcgcccacac ctgccgcacc 600
 gagcagcgcg tcggtaacgc cgtgcagcag cgcacgcgca tcggagtggtc cgagcagccc 660
 tttttcaaat gggatttcaa ctccgccaa tatcagcttt ctgccttcgc tcagttggtg 720
 gacatcgtag ccctgtccga tacggatggt cgtcatcggt tgtgttcctg a 771

<210> 796
 <211> 256
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (85)..(85)
 <223> Xaa= any amino acid


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<220>
<221> misc_feature
<222> (121)..(121)
<223> Xaa= any amino acid

<400> 796
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      20      25      30

Leu Met Val Glu Pro Val Pro Met Pro Met Tyr Ser Phe Ser Gly Thr
      35      40      45

Asn Ser Thr Ala Phe Ser Ala Ala Met Arg Leu Ser Ser Ser Cys Val
      50      55      60

Val Ile Phe Leu Ser Phe Gly Lys Pro Tyr Gln Gln Thr Ala Ala Ile
65      70      75      80

Leu Thr Phe Phe Xaa Thr Ser Cys Pro Pro Arg Ser Asn Pro Tyr Gln
      85      90      95

Gln Tyr Arg Arg Leu Arg Leu Tyr Ala Phe His Ala Pro Glu Ile Thr
      100      105      110

Glu Phe Phe Val Gly Phe Ala Phe Xaa Val Asp Ala Arg Asn Val Tyr
      115      120      125

Ala Gln Ile Gly Gly Asp Val Gly Thr His Leu Arg Asn Met Arg Arg
      130      135      140

Glu Phe Gly Phe Leu Cys Asn His Gly Arg Ile Asp Ile Asp Arg Leu
145      150      155      160

Pro Thr Leu Arg Leu Asn Ala Leu Ile Arg Arg Thr Gln Lys Asp Ala
      165      170      175

Ala Val Arg Ile Phe Glu Leu Cys Gly Gly Val Gly Glu Met Ala Ala
      180      185      190

Asp Ile Ala Gln Thr Cys Arg Thr Glu Gln Arg Val Gly Asn Gly Val
      195      200      205

Gln Gln Arg Ile Gly Ile Gly Val Ser Glu Gln Pro Phe Phe Lys Trp
      210      215      220

Asp Phe Asn Ser Ala Lys Tyr Gln Leu Ser Ala Phe Gly Gln Leu Val
225      230      235      240

Asp Ile Val Ala Leu Ser Asp Thr Asp Val Arg His Arg Leu Cys Ser
      245      250      255

<210> 797
<211> 771

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<212> DNA

<213> Neisseria gonorrhoeae

<400> 797

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ccgatgtatt cgttttcggg tacgaattcg actgcttttt cggcggcgat gcgcttgagt    180
tcgtcttgcg tcgtcatatt tttatccttt gggaaaccct atcaacaaac agccgccatc    240
ttaacatttt tttgcacgtc ctggccgccg cgttcaaata cgtaccagca ataccgccgc    300
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ctgcgcctct atgccttcca tccgcccgag atagccgagt ttttcgttgg ttttgccttt    360
gatattgacg cagcaaatat cgatacccaa atcggcgggc atgttggcac gcatttgagg    420
aatgtgcggt gcgagtttgg gtttctgtgc aatcacggtc gtatcgacat tgaccacctg    480
ccaaccctgc gcctgaacgc tttgatacgc cgcacgcaaa aggacgcggc tgtccgcacg    540
tttgaactct gcggcggtgt cgggaaaatg gctgcccgat tgcggcaaac ctgccgcacc    600
gagcagcgcg tcggtaacgg cgtgcagcag cgcgtcggca tccgaatgcc cgagcagccc    660
tttttcaaat gggatttcaa ctccgccaag tatcagcttt ctgccttcgg tcaattgggtg    720
gacatcgtag cctgtgccga tacggatatt cgtcatcggt tgtgttcctg a          771
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<210> 798

<211> 256

<212> PRT

<213> Neisseria gonorrhoeae

<400> 798

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1          5          10          15
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```
Ala Pro Leu Ile Phe Leu Pro Leu Leu Pro Lys Ala Ser Met Lys Lys
          20          25          30
```

```
Leu Met Val Glu Pro Val Pro Met Pro Met Tyr Ser Phe Ser Gly Thr
          35          40          45
```

```
Asn Ser Thr Ala Phe Ser Ala Ala Met Arg Leu Ser Ser Ser Cys Val
          50          55          60
```

```
Val Ile Phe Leu Ser Phe Gly Lys Pro Tyr Gln Gln Thr Ala Ala Ile
65          70          75          80
```

```
Leu Thr Phe Phe Cys Thr Ser Trp Pro Pro Arg Ser Asn Pro Tyr Gln
          85          90          95
```

```
Gln Tyr Arg Arg Leu Arg Leu Tyr Ala Phe His Pro Pro Glu Ile Ala
          100          105          110
```

```
Glu Phe Phe Val Gly Phe Ala Phe Asp Ile Asp Ala Arg Asn Ile Asp
          115          120          125
```

```
Thr Gln Ile Gly Gly Asp Val Gly Thr His Leu Arg Asn Val Arg Cys
          130          135          140
```

```
Glu Phe Gly Phe Leu Cys Asn His Gly Arg Ile Asp Ile Asp His Leu
          145          150          155          160
```

```
Pro Thr Leu Arg Leu Asn Ala Leu Ile Arg Arg Thr Gln Lys Asp Ala
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165 170 175

Ala Val Arg Ile Phe Glu Leu Cys Gly Gly Val Gly Lys Met Ala Ala
180 185 190

Asp Val Ala Gln Thr Cys Arg Thr Glu Gln Arg Val Gly Asn Gly Val
195 200 205

Gln Gln Arg Val Gly Ile Arg Met Pro Glu Gln Pro Phe Phe Lys Trp
210 215 220

Asp Phe Asn Ser Ala Lys Tyr Gln Leu Ser Ala Phe Gly Gln Leu Val
225 230 235 240

Asp Ile Val Ala Leu Ser Asp Thr Asp Ile Arg His Arg Leu Cys Ser
245 250 255

<210> 799
<211> 197
<212> DNA
<213> Neisseria meningitidis

<400> 799
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gttaccctga tcggcacggt acttgccgtc atgctgcccg ttaccgaata tgaaaacttc 120
ctgctgctta tcggctcggt atttgccgccg atggggcgga ttttgattgc cgactttttc 180
gtcttgaaac ggcgtga 197

<210> 800
<211> 64
<212> PRT
<213> Neisseria meningitidis

<400> 800
Ala Gly Ala Ser Ala Asn Asn Ile Ser Ala Arg Phe Ala Glu Thr Pro
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Val Ala Val Ser Val Thr Leu Ile Gly Thr Val Leu Ala Val Met Leu
20 25 30
Pro Val Thr Glu Tyr Glu Asn Phe Leu Leu Leu Ile Gly Ser Val Phe
35 40 45
Ala Pro Met Gly Gly Phe Asp Cys Arg Leu Phe Arg Leu Glu Thr Ala
50 55 60

<210> 801
<211> 1224
<212> DNA
<213> Neisseria meningitidis

<400> 801
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gcggcggtat cgattgccga aatcagcacg ggtacgctgc ttgcgccttt gggctggcag 120
cgcggtctgg cggtctact tttgggtcat gccgtcggcg gcgcgctgtt ttttgccggc 180
gcgtatatcg gcgcactgac cggacgcagc tcgatggaaa gcgtgcgcct gtcgttcggc 240

aaacgcggtt	cagtgtgtt	ttccgtggcg	aatatgctgc	aactggccgg	ctggacggcg	300
gtgatgattt	acgccggcgc	aacggtcagc	tccgctttgg	gcaaagtgtt	gtgggacggc	360
gaatcttttg	tctggtgggc	attggcaaac	ggcgcgctga	ttgtgctgtg	gctggttttc	420
ggcgcacgca	aaacaggcgg	gctgaaaacc	gtttcgatgc	tgctgatgct	gttggcgggt	480
ctgtggctga	gtgccgaagt	cttttccacg	gcaggcagca	ccgccgcaca	ggtttcagac	540
ggcatgagtt	tcggaacggc	agtcgagctg	tccgccgtga	tgccgctttc	ctggctgccg	600
cttgccgccg	actacacgcg	ccacgcgcgc	cgcccgtttg	cggcaaccct	gacggcaacg	660
ctcgcctaca	cgtgaccggg	ctgctggatg	tatgccttgg	gtttggcagc	ggcgttggtc	720
accggagaaa	ccgacgtggc	aaaaatcctg	ctgggcgcag	gtttgggtgc	ggcaggcatt	780
ttggcggtcg	tcctctccac	cgttaccaca	acgtttctcg	atgcctattc	cgccggcgcg	840
agtgcgaaca	acatttccgc	gcgttttgcg	gaaacacccg	tcgctgtcgg	cgttaccctg	900

atcggcacgg	tacttgccgt	catgctgccc	gttaccgaat	atgaaaactt	cctgctgctt	960
atcggctcgg	tatttgccgc	gatggcggcg	gttttgattg	ccgacttttt	cgtcttgaaa	1020
cggcgtgagg	agattgaagg	ctttgacttt	gccggactgg	ttctgtggct	tgccgggctt	1080
atcctctacc	gcttccctgct	ctcgtccggc	tgggaaagca	gcatcgggtc	gaccgcccc	1140
gtaatgtctg	ccgttgccat	tgccaccgta	tcggtacgcc	ttttctttaa	aaaaacccaa	1200
tctttacaaa	ggaacccgtc	atga				1224

<210> 802
 <211> 407
 <212> PRT
 <213> Neisseria meningitidis

<400> 802
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 Ile Trp Phe Gly Ala Ala Val Ser Ile Ala Glu Ile Ser Thr Gly Thr
 20 25 30
 Leu Leu Ala Pro Leu Gly Trp Gln Arg Gly Leu Ala Ala Leu Leu Leu
 35 40 45
 Gly His Ala Val Gly Gly Ala Leu Phe Phe Ala Ala Ala Tyr Ile Gly
 50 55 60
 Ala Leu Thr Gly Arg Ser Ser Met Glu Ser Val Arg Leu Ser Phe Gly
 65 70 75 80
 Lys Arg Gly Ser Val Leu Phe Ser Val Ala Asn Met Leu Gln Leu Ala
 85 90 95
 Gly Trp Thr Ala Val Met Ile Tyr Ala Gly Ala Thr Val Ser Ser Ala
 100 105 110
 Leu Gly Lys Val Leu Trp Asp Gly Glu Ser Phe Val Trp Trp Ala Leu
 115 120 125
 Ala Asn Gly Ala Leu Ile Val Leu Trp Leu Val Phe Gly Ala Arg Lys
 130 135 140
 Thr Gly Gly Leu Lys Thr Val Ser Met Leu Leu Met Leu Leu Ala Val
 145 150 155 160
 Leu Trp Leu Ser Ala Glu Val Phe Ser Thr Ala Gly Ser Thr Ala Ala

165										170					175				
Gln	Val	Ser	Asp	Gly	Met	Ser	Phe	Gly	Thr	Ala	Val	Glu	Leu	Ser	Ala				
			180					185					190						
Val	Met	Pro	Leu	Ser	Trp	Leu	Pro	Leu	Ala	Ala	Asp	Tyr	Thr	Arg	His				
		195					200					205							
Ala	Arg	Arg	Pro	Phe	Ala	Ala	Thr	Leu	Thr	Ala	Thr	Leu	Ala	Tyr	Thr				
	210					215					220								
Leu	Thr	Gly	Cys	Trp	Met	Tyr	Ala	Leu	Gly	Leu	Ala	Ala	Ala	Leu	Phe				
225					230					235					240				
Thr	Gly	Glu	Thr	Asp	Val	Ala	Lys	Ile	Leu	Leu	Gly	Ala	Gly	Leu	Gly				
				245					250					255					
Ala	Ala	Gly	Ile	Leu	Ala	Val	Val	Leu	Ser	Thr	Val	Thr	Thr	Thr	Phe				
		260						265					270						
Leu	Asp	Ala	Tyr	Ser	Ala	Gly	Ala	Ser	Ala	Asn	Asn	Ile	Ser	Ala	Arg				
	275						280					285							
Phe	Ala	Glu	Thr	Pro	Val	Ala	Val	Gly	Val	Thr	Leu	Ile	Gly	Thr	Val				
	290					295					300								
Leu	Ala	Val	Met	Leu	Pro	Val	Thr	Glu	Tyr	Glu	Asn	Phe	Leu	Leu	Leu				
305					310					315					320				
Ile	Gly	Ser	Val	Phe	Ala	Pro	Met	Ala	Ala	Val	Leu	Ile	Ala	Asp	Phe				
			325						330					335					
Phe	Val	Leu	Lys	Arg	Arg	Glu	Glu	Ile	Glu	Gly	Phe	Asp	Phe	Ala	Gly				
		340						345					350						
Leu	Val	Leu	Trp	Leu	Ala	Gly	Phe	Ile	Leu	Tyr	Arg	Phe	Leu	Leu	Ser				
		355					360					365							
Ser	Gly	Trp	Glu	Ser	Ser	Ile	Gly	Leu	Thr	Ala	Pro	Val	Met	Ser	Ala				
	370					375					380								
Val	Ala	Ile	Ala	Thr	Val	Ser	Val	Arg	Leu	Phe	Phe	Lys	Lys	Thr	Gln				
385					390					395					400				
Ser	Leu	Gln	Arg	Asn	Pro	Ser													
			405																

<210> 803
 <211> 1041
 <212> DNA
 <213> Neisseria meningitidis

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 <222> (23)..(23)

<223> N= Unknown

<220>

<221> misc_feature

<222> (132)..(132)

<223> N= Unknown

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<222> (209)..(209)

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<222> (499)..(499)

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<222> (501)..(501)

<223> N= Unknown

<220>

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<222> (529)..(530)

<223> N= Unknown

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<222> (534)..(535)

<223> N= Unknown

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<223> N= Unknown

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<222> (825)..(825)

<223> N= Unknown

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<222> (879)..(879)

<223> N= Unknown

<400> 803

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cgcggtctgg	cngctctgct	tttgggtcat	gccgtcggcg	gcgcgctggt	ttttgcggcg	180
gcgtatatcg	gcgcactgac	cggacncanc	tcgatggaaa	gcgtgcgcct	gtcgttcggc	240
aaacgcgggt	cagtgtctgt	ttccgtggcg	aatatgctgc	aactggccgg	ctggacggcg	300
gtgatgattt	acgccggcgc	aacggtcagc	tccgcttttg	gcaaagtgtt	gtgggacggc	360
gaatcttttg	tctggtgggc	attggcaaac	ggcgcgctga	ttgtgctgtg	gctgggtttc	420
ggcgcacgca	aaacaggcgg	gctgaaaacc	gtttcgatgc	tgctgatgct	gttggcggtt	480
ctgtggctga	gtgccgaant	nttttccacg	gcaggcagca	ccgccgcann	ggtnnccagac	540
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ctcgccctaca	cgctgaccgg	ctgctggatg	tatgccttgg	gtttggcagc	ggcgttgttc	720
accggagaaa	ccgacgtggc	aaaaatcctg	ctgggcgcag	gtttgggtgc	ggcaggcatt	780
ttggcggtcg	tcctgtcgac	cgttaccacc	acttttctcg	atgcntactc	cgccggcgta	840
agtccaaca	atatttccgc	caaactttcg	gaaataccna	tcgccgttgc	cgtcgccgtt	900
gtcggcacac	tgcttgccgt	cctcctgccc	gttaccgaat	atgaaaactt	cctgctgctt	960

atcggtcgcg	tatttgcgcc	gatggcggcg	gttttgattg	ccgacttttt	cgtcttgaaa	1020
cggcgtgagg	agattgaagg	c				1041

<210> 804
 <211> 347
 <212> PRT
 <213> Neisseria meningitidis

<220>
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 <222> (8)..(8)
 <223> Xaa= any amino acid

<220>
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 <222> (69)..(70)
 <223> Xaa= any amino acid

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 <222> (167)..(167)
 <223> Xaa= any amino acid

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 <222> (177)..(177)
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<220>
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 <222> (179)..(179)
 <223> Xaa= any amino acid

<400> 804
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 20 25 30
 Leu Leu Ala Pro Leu Gly Trp Gln Arg Gly Leu Ala Ala Leu Leu Leu

35	40	45
Gly His Ala Val Gly Gly Ala Leu Phe Phe Ala Ala Ala Tyr Ile Gly		
50	55	60
Ala Leu Thr Gly Xaa Xaa Ser Met Glu Ser Val Arg Leu Ser Phe Gly		
65	70	75
Lys Arg Gly Ser Val Leu Phe Ser Val Ala Asn Met Leu Gln Leu Ala		
85	90	95
Gly Trp Thr Ala Val Met Ile Tyr Ala Gly Ala Thr Val Ser Ser Ala		
100	105	110
Leu Gly Lys Val Leu Trp Asp Gly Glu Ser Phe Val Trp Trp Ala Leu		
115	120	125
Ala Asn Gly Ala Leu Ile Val Leu Trp Leu Val Phe Gly Ala Arg Lys		
130	135	140
Thr Gly Gly Leu Lys Thr Val Ser Met Leu Leu Met Leu Leu Ala Val		
145	150	155
Leu Trp Leu Ser Ala Glu Xaa Phe Ser Thr Ala Gly Ser Thr Ala Ala		
165	170	175
Xaa Val Xaa Asp Gly Met Ser Phe Gly Thr Ala Val Glu Leu Ser Ala		
180	185	190
Val Met Pro Leu Ser Trp Leu Pro Leu Ala Ala Asp Tyr Thr Arg His		
195	200	205
Ala Arg Arg Pro Phe Ala Ala Thr Leu Thr Ala Thr Leu Ala Tyr Thr		
210	215	220
Leu Thr Gly Cys Trp Met Tyr Ala Leu Gly Leu Ala Ala Ala Leu Phe		
225	230	235
Thr Gly Glu Thr Asp Val Ala Lys Ile Leu Leu Gly Ala Gly Leu Gly		
245	250	255
Ala Ala Gly Ile Leu Ala Val Val Leu Ser Thr Val Thr Thr Thr Phe		
260	265	270
Leu Asp Ala Tyr Ser Ala Gly Val Ser Ala Asn Asn Ile Ser Ala Lys		
275	280	285
Leu Ser Glu Ile Pro Ile Ala Val Ala Val Ala Val Val Gly Thr Leu		
290	295	300
Leu Ala Val Leu Leu Pro Val Thr Glu Tyr Glu Asn Phe Leu Leu Leu		
305	310	315
Ile Gly Ser Val Phe Ala Pro Met Ala Ala Val Leu Ile Ala Asp Phe		
325	330	335

Phe Val Leu Lys Arg Arg Glu Glu Ile Glu Gly
 340 345

<210> 805
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
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 <222> (1)..(8)
 <223> N = Unknown

<400> 805
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8

<210> 806
 <211> 343
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 806
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 1 5 10 15

Val Trp Phe Gly Ala Ala Val Ser Ile Ala Glu Ile Ser Thr Gly Thr
 20 25 30

Leu Leu Ala Pro Leu Gly Trp Gln Arg Gly Leu Ala Ala Leu Leu Leu
 35 40 45

Gly His Ala Val Gly Gly Ala Leu Phe Phe Ala Ala Ala Tyr Ile Gly
 50 55 60

Ala Leu Thr Gly Arg Ser Ser Met Glu Ser Val Arg Leu Ser Phe Gly
 65 70 75 80

Lys Cys Gly Ser Val Leu Phe Ser Val Ala Asn Met Leu Gln Leu Ala
 85 90 95

Gly Trp Thr Ala Val Met Ile Tyr Val Gly Ala Thr Val Ser Ser Ala
 100 105 110

Leu Gly Lys Val Leu Trp Asp Gly Glu Ser Phe Val Trp Trp Ala Leu
 115 120 125

Ala Asn Gly Ala Leu Ile Val Leu Trp Leu Val Phe Gly Ala Arg Arg
 130 135 140

Thr Gly Gly Leu Lys Thr Val Ser Met Leu Leu Met Leu Leu Ala Val
 145 150 155 160

Leu Trp Leu Ser Val Glu Val Phe Ala Ser Ser Gly Thr Asn Ala Ala
 165 170 175

Pro Ala Val Ser Asp Gly Met Thr Phe Gly Thr Ala Val Glu Leu Ser
 180 185 190
 Ala Val Met Pro Leu Ser Trp Leu Pro Leu Ala Ala Asp Tyr Thr Arg
 195 200 205
 Gln Ala Arg Arg Pro Phe Ala Ala Thr Leu Thr Ala Thr Leu Ala Tyr
 210 215 220
 Thr Leu Thr Gly Cys Trp Met Tyr Ala Leu Gly Leu Ala Ala Ala Leu
 225 230 235 240
 Phe Thr Gly Glu Thr Asp Val Ala Lys Ile Leu Leu Gly Ala Gly Leu
 245 250 255
 Gly Ile Thr Gly Ile Leu Ala Val Val Leu Ser Thr Val Thr Thr Thr
 260 265 270
 Phe Leu Asp Thr Tyr Ser Ala Gly Ala Ser Ala Asn Asn Ile Ser Ala
 275 280 285
 Arg Phe Ala Glu Ile Pro Val Ala Val Gly Val Thr Leu Ile Arg Thr
 290 295 300
 Val Leu Ala Val Met Leu Pro Val Thr Glu Tyr Lys Asn Phe Leu Leu
 305 310 315 320
 Leu Ile Arg Ser Val Phe Gly Pro Met Ala Gly Gly Phe Asp Cys Arg
 325 330 335
 Leu Phe Cys Leu Lys Thr Ala
 340

<210> 807
 <211> 1227
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 807
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 cgcggtctgg cggccctgct tttgggtcat gccgtcggcg gcgcgctggt ttttgcggcg 180
 gcgtatatcg gcgcactgac cggacgcagc tcgatggaaa gtgtgcgcct gtcgttcggc 240
 aaatgcggtt cagtgtgtgt ttccgtggcg aatatgctgc aactggccgg ctggacggcg 300
 gtgatgattt acgtcggcgc aacggtcagc tccgctttgg gcaaagtgtt gtgggacggc 360
 gaatcctttg tctggtgggc attggcaaac ggcgactga tcgtgctgtg gctgggtttc 420
 ggcgcacgca gaacgggagg gctgaaaacc gtttcgatgc tgcgtgatgt gcttgccgtg 480
 ttgtggttga gcgtcgaagt gttcgttcg tccggcacia acgcgcgcgc cgcggtttca 540
 gacggcatga ccttcggaac ggcagtcgaa ctgtccgcgc tcatgccgct ttccgtgctg 600
 ccgctggccg ccgactacac gcgccaagca cgcgcgccgt ttgcggcaac cctgacggca 660
 acgctgcgct atacgctgac gggctgctgg atgtatgcct tgggtttggc ggcggctctg 720
 tttaccggag aaaccgacgt ggcgaaaatc ctggtgggcy cgggcttggg cataacgggc 780
 attctggcag tcgtcctctc caccgttacc acaacgtttc tcgataccta ttccgcggc 840
 gcgagtgcga acaacatttc cgcgcgtttt gcggaatac ccgtcgctgt cggcgttacc 900
 ctgatcggca cgggtgcttc cgtcatgctg cccgttaccg aatataaaaa cttcctgctg 960
 cttatcggct cgggtatttg gccgatggcg gcggttttga ttgccgactt tttcgtctta 1020

aaacggcgtg aggagattga aggcctttgac tttgccggac tgggttctgtg gctggcaggc 1080
 ttcacacctct accgcttctt gctctcgtcc gggtgggaaa gcagcatcgg tctgaccgcc 1140
 cccgtaatgt ctgccgttgc cattgccacc gtatcggtag cccttttctt taaaaaaacc 1200
 caatctttac aaaggaaccc gtcatga 1227

<210> 808
 <211> 408
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 808
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 Val Trp Phe Gly Ala Ala Val Ser Ile Ala Glu Ile Ser Thr Gly Thr
 20 25 30
 Leu Leu Ala Pro Leu Gly Trp Gln Arg Gly Leu Ala Ala Leu Leu Leu
 35 40 45
 Gly His Ala Val Gly Gly Ala Leu Phe Phe Ala Ala Ala Tyr Ile Gly
 50 55 60
 Ala Leu Thr Gly Arg Ser Ser Met Glu Ser Val Arg Leu Ser Phe Gly
 65 70 75 80
 Lys Cys Gly Ser Val Leu Phe Ser Val Ala Asn Met Leu Gln Leu Ala
 85 90 95
 Gly Trp Thr Ala Val Met Ile Tyr Val Gly Ala Thr Val Ser Ser Ala
 100 105 110
 Leu Gly Lys Val Leu Trp Asp Gly Glu Ser Phe Val Trp Trp Ala Leu
 115 120 125
 Ala Asn Gly Ala Leu Ile Val Leu Trp Leu Val Phe Gly Ala Arg Arg
 130 135 140
 Thr Gly Gly Leu Lys Thr Val Ser Met Leu Leu Met Leu Leu Ala Val
 145 150 155 160
 Leu Trp Leu Ser Val Glu Val Phe Ala Ser Ser Gly Thr Asn Ala Ala
 165 170 175
 Pro Ala Val Ser Asp Gly Met Thr Phe Gly Thr Ala Val Glu Leu Ser
 180 185 190
 Ala Val Met Pro Leu Ser Trp Leu Pro Leu Ala Ala Asp Tyr Thr Arg
 195 200 205
 Gln Ala Arg Arg Pro Phe Ala Ala Thr Leu Thr Ala Thr Leu Ala Tyr
 210 215 220
 Thr Leu Thr Gly Cys Trp Met Tyr Ala Leu Gly Leu Ala Ala Ala Leu
 225 230 235 240

Phe Thr Gly Glu Thr Asp Val Ala Lys Ile Leu Leu Gly Ala Gly Leu
245 250 255

Gly Ile Thr Gly Ile Leu Ala Val Val Leu Ser Thr Val Thr Thr Thr
260 265 270

Phe Leu Asp Thr Tyr Ser Ala Gly Ala Ser Ala Asn Asn Ile Ser Ala
275 280 285

Arg Phe Ala Glu Ile Pro Val Ala Val Gly Val Thr Leu Ile Gly Thr
290 295 300

Val Leu Ala Val Met Leu Pro Val Thr Glu Tyr Lys Asn Phe Leu Leu
305 310 315 320

Leu Ile Gly Ser Val Phe Ala Pro Met Ala Ala Val Leu Ile Ala Asp
325 330 335

Phe Phe Val Leu Lys Arg Arg Glu Glu Ile Glu Gly Phe Asp Phe Ala
340 345 350

Gly Leu Val Leu Trp Leu Ala Gly Phe Ile Leu Tyr Arg Phe Leu Leu
355 360 365

Ser Ser Gly Trp Glu Ser Ser Ile Gly Leu Thr Ala Pro Val Met Ser
370 375 380

Ala Val Ala Ile Ala Thr Val Ser Val Arg Leu Phe Phe Lys Lys Thr
385 390 395 400

Gln Ser Leu Gln Arg Asn Pro Ser
405

<210> 809
<211> 549
<212> DNA
<213> Neisseria meningitidis

<220>
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<222> (162)..(162)
<223> N= Unknown

<220>
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<222> (345)..(345)
<223> N= Unknown

<220>
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<222> (447)..(447)
<223> N= Unknown

<400> 809

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gccgcctatg	tagccggcgc	catgctcgcg	cctgcagcgg	anacggtcga	agccacgccc	180
gaagtgggtca	ggctgggcag	gcagagcatc	ccgctttggc	gcggcatcgc	atgccgtctg	240
aacacgcaca	cgatgatgca	ggaaaacggc	agcctgattg	tatggcacgg	gcaggacaag	300
ccattatcca	gcgagttcgt	ccgccatctc	aaacgcggcg	gcgtnacgga	tgacgaaatc	360
gtccgttggc	gcgccgacga	catcgccgaa	cgcgaaccgc	aactcggcgg	acgtttttaa	420
gacggcatct	acctgccgac	cgaagcncag	ctcgacgggc	ggcaattata	gtctgcactt	480
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<210> 810
 <211> 183
 <212> PRT
 <213> Neisseria meningitidis

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 <222> (54)..(54)
 <223> Xaa= any amino acid

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 <222> (115)..(115)
 <223> Xaa= any amino acid

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 <222> (140)..(140)
 <223> Xaa= any amino acid

<220>
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 <222> (149)..(149)
 <223> Xaa= any amino acid

<220>
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 <222> (157)..(157)
 <223> Xaa= any amino acid

<400> 810
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 20 25 30
 Ser Cys Arg Arg Gly Glu His Ala Ala Ala Tyr Val Ala Ala Met
 35 40 45
 Leu Ala Pro Ala Ala Xaa Thr Val Glu Ala Thr Pro Glu Val Val Arg
 50 55 60
 Leu Gly Arg Gln Ser Ile Pro Leu Trp Arg Gly Ile Arg Cys Arg Leu
 65 70 75 80

Ala Leu Gln Leu Ala Glu Gln Gly Tyr Gln Ile Ala Leu Phe Asp Lys
 20 25 30
 Gly Cys Arg Arg Gly Glu His Ala Ala Ala Tyr Val Ala Ala Ala Met
 35 40 45
 Leu Ala Pro Ala Ala Glu Ala Val Glu Ala Thr Pro Glu Val Val Arg
 50 55 60
 Leu Gly Arg Gln Ser Ile Pro Leu Trp Arg Gly Ile Arg Cys Arg Leu
 65 70 75 80
 Asn Thr His Thr Met Met Gln Glu Asn Gly Ser Leu Ile Val Trp His
 85 90 95
 Gly Gln Asp Lys Pro Leu Ser Ser Glu Phe Val Arg His Leu Lys Arg
 100 105 110
 Gly Gly Val Ala Asp Asp Glu Ile Val Arg Trp Arg Ala Asp Asp Ile
 115 120 125
 Ala Glu Arg Glu Pro Gln Leu Gly Gly Arg Phe Ser Asp Gly Ile Tyr
 130 135 140
 Leu Pro Thr Glu Gly Gln Leu Asp Gly Arg Gln Ile Leu Ser Ala Leu
 145 150 155 160
 Ala Asp Ala Leu Asp Glu Leu Asn Val Pro Cys His Trp Glu His Glu
 165 170 175
 Cys Val Pro Glu Gly Leu Gln Ala Gln Tyr Asp Trp Leu Ile Asp Cys
 180 185 190
 Arg Gly Tyr Gly Ala Lys Thr Ala Trp Asn Gln Ser Pro Glu His Thr
 195 200 205
 Ser Thr Leu Arg Gly Ile Arg Gly Glu Val Ala Arg Val Tyr Thr Pro
 210 215 220
 Glu Ile Thr Leu Asn Arg Pro Val Arg Leu Leu His Pro Arg Tyr Pro
 225 230 235 240
 Leu Tyr Ile Ala Pro Lys Glu Asn His Val Phe Val Ile Gly Ala Thr
 245 250 255
 Gln Ile Glu Ser Glu Ser Gln Ala Pro Ala Ser Val Arg Ser Gly Leu
 260 265 270
 Glu Leu Leu Ser Ala Leu Tyr Ala Ile His Pro Ala Phe Gly Glu Ala
 275 280 285
 Asp Ile Leu Glu Ile Ala Thr Gly Leu Arg Pro Thr Leu Asn His His
 290 295 300

Asn Pro Glu Ile Arg Tyr Asn Arg Ala Arg Arg Leu Ile Glu Ile Asn
 305 310 315 320

Gly Leu Phe Arg His Gly Phe Met Ile Ser Pro Ala Val Thr Ala Ala
 325 330 335

Ala Ala Arg Leu Ala Val Ala Leu Phe Asp Gly Lys Asp Ala Pro Glu
 340 345 350

Arg Asp Lys Glu Ser Gly Leu Ala Tyr Ile Arg Arg Gln Asp
 355 360 365

<210> 813
 <211> 1101
 <212> DNA
 <213> Neisseria meningitidis

<220>
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 <222> (36)..(36)
 <223> N= Unknown

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<221> misc_feature
 <222> (206)..(206)
 <223> N= Unknown

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 <222> (261)..(261)
 <223> N= Unknown

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 <222> (355)..(355)
 <223> N= Unknown

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 <222> (618)..(619)
 <223> N= Unknown

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 <222> (621)..(621)
 <223> N= Unknown

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 <222> (723)..(723)
 <223> N= Unknown

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 <222> (746)..(746)

<223> N= Unknown

<220>

<221> misc_feature

<222> (1047)..(1047)

<223> N= Unknown

<400> 813

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gccgcctatg	ttgccgccgc	catgctcgcg	cctgcggcgg	aagcggtcga	agccacgcct	180
gaagtggta	ggctgggcag	gcagancatc	ccgctttggc	gcggcatccg	atgccatctg	240
aaaacgcctg	ccatgatgca	ngaaaacggc	agcctgattg	tgtggcacgg	gcaggacaaa	300
cctttatcca	acgagttcgt	ccgccatctc	aaacgcggcg	gcgtagcgga	tgacnaaatc	360
gtccgttggc	gcgccgacga	catcgccgaa	cgcgaaccgc	aactcggcgg	acgtttttca	420
gacggcatct	acctgccgac	cgaaggccag	ctcgacgggc	ggcaaatatt	gtctgcactt	480
gccgacgctt	tggacgaact	gaacgtcccc	tgccattggg	aacacgaatg	tgccccgaa	540
gacttgcaag	ccccatagca	ctggctgata	gactgccgcg	gctacggcgc	aaaaaccgcg	600
tggaaccaat	cccccganna	naccagcacc	ctgcgcggca	tacgcggcga	agtggcgcg	660
gtttacacac	ccgaaatcac	gctcaaccgc	cccgtgcgcc	tgctacacc	gcgctatccg	720
ctntacatcg	ccccgaaaga	aaaccncgtc	ttcgtcatcg	gcgcgaccca	aatcgaaagc	780
gaaagccaag	cacctgccag	cgtgcgttcc	gggctggaac	tcttatccgc	actctatgcc	840
gtccaccccg	ccttcggcga	agccgacatc	ctcgaaatcg	ccaccggcct	gcgccccacg	900
ctcaatcacc	acaaccccg	aatccgttac	aaccgcggcc	gacgcctgat	tgaaatcaac	960

ggccttttcc	gccacggttt	catgatctcc	cccgcgcgtaa	ccgcgcgcgc	cgtcagattg	1020
gcagtggcac	tgtttgacgg	aaaagangcg	cccgaacgcg	atgaagaaag	cggtttggcg	1080
tatatccgaa	gacaagatta	a				1101

<210> 814

<211> 366

<212> PRT

<213> Neisseria meningitidis

<220>

<221> misc_feature

<222> (69)..(69)

<223> Xaa= any amino acid

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<222> (87)..(87)

<223> Xaa= any amino acid

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<222> (119)..(119)

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<220>

<221> misc_feature

<222> (206)..(207)

<223> Xaa= any amino acid

<220>

<221> misc_feature

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<222> (249)..(249)
<223> Xaa= any amino acid

<220>
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<222> (349)..(349)
<223> Xaa= any amino acid

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20          25          30
Gly Cys Arg Arg Gly Glu His Ala Ala Ala Tyr Val Ala Ala Ala Met
35          40          45
Leu Ala Pro Ala Ala Glu Ala Val Glu Ala Thr Pro Glu Val Val Arg
50          55          60
Leu Gly Arg Gln Xaa Ile Pro Leu Trp Arg Gly Ile Arg Cys His Leu
65          70          75          80
Lys Thr Pro Ala Met Met Xaa Glu Asn Gly Ser Leu Ile Val Trp His
85          90          95
Gly Gln Asp Lys Pro Leu Ser Asn Glu Phe Val Arg His Leu Lys Arg
100         105         110
Gly Gly Val Ala Asp Asp Xaa Ile Val Arg Trp Arg Ala Asp Asp Ile
115         120         125
Ala Glu Arg Glu Pro Gln Leu Gly Gly Arg Phe Ser Asp Gly Ile Tyr
130         135         140
Leu Pro Thr Glu Gly Gln Leu Asp Gly Arg Gln Ile Leu Ser Ala Leu
145         150         155         160
Ala Asp Ala Leu Asp Glu Leu Asn Val Pro Cys His Trp Glu His Glu
165         170         175
Cys Ala Pro Glu Asp Leu Gln Ala Gln Tyr Asp Trp Leu Ile Asp Cys
180         185         190
Arg Gly Tyr Gly Ala Lys Thr Ala Trp Asn Gln Ser Pro Xaa Xaa Thr
195         200         205
Ser Thr Leu Arg Gly Ile Arg Gly Glu Val Ala Arg Val Tyr Thr Pro
210         215         220
Glu Ile Thr Leu Asn Arg Pro Val Arg Leu Leu His Pro Arg Tyr Pro
225         230         235         240
Leu Tyr Ile Ala Pro Lys Glu Asn Xaa Val Phe Val Ile Gly Ala Thr

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245 250 255
 Gln Ile Glu Ser Glu Ser Gln Ala Pro Ala Ser Val Arg Ser Gly Leu
 260 265 270
 Glu Leu Leu Ser Ala Leu Tyr Ala Val His Pro Ala Phe Gly Glu Ala
 275 280 285
 Asp Ile Leu Glu Ile Ala Thr Gly Leu Arg Pro Thr Leu Asn His His
 290 295 300
 Asn Pro Glu Ile Arg Tyr Asn Arg Ala Arg Arg Leu Ile Glu Ile Asn
 305 310 315 320
 Gly Leu Phe Arg His Gly Phe Met Ile Ser Pro Ala Val Thr Ala Ala
 325 330 335
 Ala Val Arg Leu Ala Val Ala Leu Phe Asp Gly Lys Xaa Ala Pro Glu
 340 345 350
 Arg Asp Glu Glu Ser Gly Leu Ala Tyr Ile Arg Arg Gln Asp
 355 360 365

<210> 815
 <211> 8
 <212> DNA

<213> Neisseria gonorrhoeae

<220>
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 <222> (1)..(8)
 <223> N = Unknown

<400> 815
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8

<210> 816
 <211> 366
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 816
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 20 25 30
 Gly Thr Arg Gln Gly Glu His Ala Ala Ala Tyr Val Ala Ala Ala Met
 35 40 45
 Leu Ala Pro Ala Ala Glu Ala Val Glu Ala Thr Pro Glu Val Ile Arg
 50 55 60
 Leu Gly Arg Gln Ser Ile Pro Leu Trp Arg Gly Ile Arg Cys Arg Leu

65		70		75		80
Asn Thr Leu Thr Met Met Gln Glu Asn Gly Ser Leu Ile Val Trp His						
	85			90		95
Gly Gln Asp Lys Pro Leu Ser Ser Glu Phe Val Arg His Leu Lys Arg						
	100		105		110	
Gly Gly Val Ala Asp Asp Glu Ile Val Arg Trp Arg Ala Asp Glu Ile						
	115		120		125	
Ala Glu Arg Glu Pro Gln Leu Gly Gly Arg Phe Ser Asp Gly Ile Tyr						
	130		135		140	
Leu Pro Thr Glu Gly Gln Leu Asp Gly Arg Gln Ile Leu Ser Ala Leu						
	145		150		155	160
Ala Asp Ala Leu Asp Glu Leu Asn Val Pro Cys His Trp Glu His Glu						
		165		170		175
Cys Ala Pro Gln Asp Leu Gln Ala Gln Tyr Asp Trp Val Ile Asp Cys						
	180		185		190	
Arg Gly Tyr Gly Ala Lys Thr Ala Trp Asn Gln Ser Pro Glu His Thr						
	195		200		205	
Ser Thr Leu Arg Gly Ile Arg Gly Glu Val Arg Gly Phe Thr Arg Pro						
	210		215		220	
Lys Ser Arg Ser Thr Ala Pro Cys Ala Cys Cys Thr Arg Ala Ile Arg						
	225		230		235	240
Ser Thr Ser Pro Arg Lys Lys Thr Thr Ser Ser Ser Ser Ala Arg Pro						
		245		250		255
Lys Ser Lys Ala Lys Ala Lys Pro Pro Pro Ala Tyr Val Pro Gly Trp						
	260		265		270	
Asn Ser Tyr Pro Arg Ser Met Pro Ser Thr Pro Pro Ser Ala Lys Pro						
	275		280		285	
Thr Ser Ser Lys Trp Arg Pro Gly Leu Arg Pro Thr Leu Asn His His						
	290		295		300	
Asn Pro Glu Ile Arg Tyr Ser Arg Glu Arg Arg Leu Ile Glu Ile Asn						
	305		310		315	320
Gly Leu Phe Arg His Gly Phe Met Ile Ser Pro Ala Val Thr Ala Ala						
		325		330		335
Ala Val Arg Leu Ala Val Ala Leu Phe Asp Gly Lys Asp Ala Pro Glu						
	340		345		350	
Arg Asp Glu Glu Ser Gly Leu Ala Tyr Ile Gly Arg Gln Asp						
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<210> 817
 <211> 1101
 <212> DNA
 <213> *Neisseria gonorrhoeae*

<400> 817
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 gccgcctatg ttgccgccgc gatgctcgcg cctgcggcgg aagcggtcga ggcaacgccc 180
 gaagtcatca ggctgggcag gcagagcatt ccgctttggc gcggcatccg atgccgtctg 240
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 ccattatcca gcgagttcgt ccgccatctc aaacgcggcg gcgtagcggg tgacgaaatc 360
 gtccgttggc gcgccgatga aatcgccgaa cgcgaaccgc aactcggcgg acgtttttca 420
 gacggcatct acctgccgac cgaaggccag ctgcacgggc ggcaaatatt gtctgcactt 480
 gccgacgctt tggacgaact gaacgtccct tgccattggg aacacgaatg cgcccccaa 540
 gacctgcaag cccaatacga ctgggtaatc gactgccggg gctacggcgc gaaaaccgcg 600
 tggaaccaat ccccgagca caccagcacc ttgcgcggca tacgcggcga agtggcgcg 660
 gtttacacgc ccgaaatcac gctcaaccgc cccgtgcgcc tgctgcaccc gcgctatccg 720
 ctctacatcg ccccgaaaga aaaccacgtc ttcgtcatcg gcgcgaccca aatcgaaagc 780
 gaaagccaag ccccgccag cgtacgttcc gggctggaac tcttatccgc gctctatgcc 840
 gtccaccccg ccttcggcga agccgacatc ctcgaaatcg ccgcggcctt gcgccccacg 900
 ctcaaccacc acaaccccg aatccgctac agccgcgaac gccgcctcat cgaaatcaac 960
 ggccttttcc ggcacggctt tatgatttcc cccgccgtaa ccgcgcgcgc cgtcagattg 1020
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<210> 818

<211> 366
 <212> PRT
 <213> *Neisseria gonorrhoeae*

<400> 818
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 20 25 30
 Gly Thr Arg Gln Gly Glu His Ala Ala Ala Tyr Val Ala Ala Ala Met
 35 40 45
 Leu Ala Pro Ala Ala Glu Ala Val Glu Ala Thr Pro Glu Val Ile Arg
 50 55 60
 Leu Gly Arg Gln Ser Ile Pro Leu Trp Arg Gly Ile Arg Cys Arg Leu
 65 70 75 80
 Asn Thr Leu Thr Met Met Gln Glu Asn Gly Ser Leu Ile Val Trp His
 85 90 95
 Gly Gln Asp Lys Pro Leu Ser Ser Glu Phe Val Arg His Leu Lys Arg
 100 105 110
 Gly Gly Val Ala Asp Asp Glu Ile Val Arg Trp Arg Ala Asp Glu Ile

115	120	125
Ala Glu Arg Glu Pro Gln Leu Gly Gly Arg Phe Ser Asp Gly Ile Tyr		
130	135	140
Leu Pro Thr Glu Gly Gln Leu Asp Gly Arg Gln Ile Leu Ser Ala Leu		
145	150	155
Ala Asp Ala Leu Asp Glu Leu Asn Val Pro Cys His Trp Glu His Glu		
165	170	175
Cys Ala Pro Gln Asp Leu Gln Ala Gln Tyr Asp Trp Val Ile Asp Cys		
180	185	190
Arg Gly Tyr Gly Ala Lys Thr Ala Trp Asn Gln Ser Pro Glu His Thr		
195	200	205
Ser Thr Leu Arg Gly Ile Arg Gly Glu Val Ala Arg Val Tyr Thr Pro		
210	215	220
Glu Ile Thr Leu Asn Arg Pro Val Arg Leu Leu His Pro Arg Tyr Pro		
225	230	235
Leu Tyr Ile Ala Pro Lys Glu Asn His Val Phe Val Ile Gly Ala Thr		
245	250	255
Gln Ile Glu Ser Glu Ser Gln Ala Pro Ala Ser Val Arg Ser Gly Leu		
260	265	270
Glu Leu Leu Ser Ala Leu Tyr Ala Val His Pro Ala Phe Gly Glu Ala		
275	280	285
Asp Ile Leu Glu Ile Ala Ala Gly Leu Arg Pro Thr Leu Asn His His		
290	295	300
Asn Pro Glu Ile Arg Tyr Ser Arg Glu Arg Arg Leu Ile Glu Ile Asn		
305	310	315
Gly Leu Phe Arg His Gly Phe Met Ile Ser Pro Ala Val Thr Ala Ala		
325	330	335
Ala Val Arg Leu Ala Val Ala Leu Phe Asp Gly Lys Asp Ala Pro Glu		
340	345	350
Arg Asp Glu Glu Ser Gly Leu Ala Tyr Ile Gly Arg Gln Asp		
355	360	365

<210> 819

<211> 452

<212> DNA

<213> Neisseria meningitidis

<400> 819

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gcagtgcggg cagccttggt agaaaatgca cattttatgg aaaagtttta tctgcagaat 180
 gggaggttta aacaaacatc taccaagtgg ccaagtttgc cgattaaaga ggcagaaggc 240
 ttttgtatcc gtttgaatgg aatcgtcgcg cggggcttta gacagtaaag tcatgttgaa 300
 ggcggtagcc atagataaag ataaaaatcc ttttattatt aagatgaatg aaaatctagt 360
 aacctttaat ttgcaagaag tccgccagtt cgtgtagtga cgggctggat tattttaaag 420
 gaaatgataa ggactgcaag ttacttaagt ag 452

<210> 820
 <211> 150
 <212> PRT
 <213> Neisseria meningitidis

<220>
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 <222> (92)..(92)
 <223> Xaa= any amino acid

<400> 820
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 Leu Ile Leu Ser Val Leu Ala Leu Ile Val Tyr Pro Ser Tyr Arg Asn
 20 25 30
 Tyr Val Glu Lys Ala Lys Ile Asn Ala Val Arg Ala Ala Leu Leu Glu
 35 40 45
 Asn Ala His Phe Met Glu Lys Phe Tyr Leu Gln Asn Gly Arg Phe Lys
 50 55 60
 Gln Thr Ser Thr Lys Trp Pro Ser Leu Pro Ile Lys Glu Ala Glu Gly
 65 70 75 80
 Phe Cys Ile Arg Leu Asn Gly Ile Val Ala Arg Xaa Ala Leu Asp Ser
 85 90 95
 Lys Phe Met Leu Lys Ala Val Ala Ile Asp Lys Asp Lys Asn Pro Phe
 100 105 110
 Ile Ile Lys Met Asn Glu Asn Leu Val Thr Phe Ile Cys Lys Lys Ser
 115 120 125
 Ala Ser Ser Cys Ser Asp Gly Leu Asp Tyr Phe Lys Gly Asn Asp Lys
 130 135 140
 Asp Cys Lys Leu Leu Lys
 145 150

<210> 821
 <211> 450
 <212> DNA
 <213> Neisseria meningitidis

<400> 821
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gcagtgcggg	cagccttggt	agaaaatgca	cattttatgg	aaaagtttta	tctgcagaat	180
gggaggttta	aacaaacatc	taccaagtgg	ccaagtttgc	cgattaaaga	ggcagaaggc	240
ttttgtatcc	gtttgaatgg	aatcgcgcg	ggggctttag	acagtaaatt	catgttgaag	300
gcggtagcca	tagataaaga	taaaaatcct	tttattatta	agatgaatga	aaatctagta	360
acctttattt	gcaagaagtc	cgccagttcg	tgtagtgacg	ggctggatta	ttttaagga	420
aatgataaag	actgcaagtt	acttaagta				450

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<400> 822
Met Thr Asp Asn Arg Gly Phe Thr Leu Val Glu Leu Ile Ser Val Val
1          5          10         15
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Tyr Val Glu Lys Ala Lys Ile Asn Ala Val Arg Ala Ala Leu Leu Glu
35 40 45

Gln Thr Ser Thr Lys Trp Pro Ser Leu Pro Ile Lys Glu Ala Glu Gly
65 70 75 80

Phe Met Leu Lys Ala Val Ala Ile Asp Lys Asp Lys Asn Pro Phe Ile
100 105 110

Ser Ser Cys Ser Asp Gly Leu Asp Tyr Phe Lys Gly Asn Asp Lys Asp
130 135 140

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<210> 823
<211> 450
<212> DNA
<213> Neisseria meningitidis
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<400>	823						
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acagtgcggg	cagccttggt	agaaaatgca	cattttatgg	aaaagtttta	tctgcagaat		180
gggagattta	aacaaacatc	taccaaatgg	ccaagtttgc	cgattaaaga	ggcagaaggc		240
ttttgtatcc	gtttgaatgg	aatcgcgcg	ggggccttag	acagtaaatt	catgttgaag		300
qcqgtagcca	tagataaaga	taaaaatcct	tttattatta	agatgaatga	aaatctagta		360

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aatgataagg actgcaagtt acttaagtag 450

<210> 824
<211> 149
<212> PRT
<213> Neisseria meningitidis

<400> 824
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Leu Ile Leu Ser Val Leu Ala Leu Ile Val Tyr Pro Ser Tyr Arg Asn
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Tyr Val Glu Lys Ala Lys Ile Asn Thr Val Arg Ala Ala Leu Leu Glu
35 40 45
Asn Ala His Phe Met Glu Lys Phe Tyr Leu Gln Asn Gly Arg Phe Lys
50 55 60
Gln Thr Ser Thr Lys Trp Pro Ser Leu Pro Ile Lys Glu Ala Glu Gly
65 70 75 80
Phe Cys Ile Arg Leu Asn Gly Ile Ala Arg Gly Ala Leu Asp Ser Lys
85 90 95
Phe Met Leu Lys Ala Val Ala Ile Asp Lys Asp Lys Asn Pro Phe Ile
100 105 110
Ile Lys Met Asn Glu Asn Leu Val Thr Phe Ile Cys Lys Lys Ser Ala
115 120 125
Ser Ser Cys Ser Asp Gly Leu Asp Tyr Phe Lys Gly Asn Asp Lys Asp
130 135 140
Cys Lys Leu Leu Lys
145

<210> 825
<211> 450
<212> DNA
<213> Neisseria gonorrhoeae

<400> 825
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gcagtgcggg cagccttggtt agaaaatgca ctttttatgg aaaagtttta tctgcagaat 180
gggagattta aacaaacatc taccaaatgg ccaagtttgc cgattaaaga ggcagaaggc 240
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gcggtagcca tagataaaga taaaaatcct tttattatta agatgaatga aaatctagta 360
acctttatatt gcaagaagtc cgccagttcg tgtagtgacg ggctggatta ttttaaagga 420
aatgataagg actgcaagtt acttaagtag 450

<210> 826
<211> 149

<212> PRT

<213> Neisseria gonorrhoeae

<400> 826

Met Thr Asp Asn Arg Gly Phe Thr Leu Val Glu Leu Ile Ser Val Val
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Leu Ile Leu Ser Val Leu Ala Leu Ile Val Tyr Pro Ser Tyr Arg Asn
20 25 30

Tyr Val Glu Lys Ala Lys Ile Asn Ala Val Arg Ala Ala Phe Leu Glu
35 40 45

Asn Ala His Phe Met Glu Lys Phe Tyr Leu Gln Asn Gly Arg Phe Lys
50 55 60

Gln Thr Ser Thr Lys Trp Pro Ser Leu Pro Ile Lys Glu Ala Glu Gly
65 70 75 80

Phe Cys Ile Arg Leu Asn Gly Ile Ala Arg Gly Ala Leu Asp Ser Lys
85 90 95

Phe Met Leu Lys Ala Val Ala Ile Asp Lys Asp Lys Asn Pro Phe Ile
100 105 110

Ile Lys Met Asn Glu Asn Leu Val Thr Phe Ile Cys Lys Lys Ser Ala
115 120 125

Ser Ser Cys Ser Asp Arg Leu Asp Tyr Phe Lys Gly Asn Asp Lys Asp
130 135 140

Cys Lys Leu Leu Lys
145

<210> 827

<211> 734

<212> DNA

<213> Neisseria meningitidis

<400> 827

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<210> 828

<211> 244

<212> PRT

<213> Neisseria meningitidis

<400> 828

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Phe Asn Gln Met Arg Lys Thr Val Glu Leu Ser Ala Val Phe Leu Ser
20 25 30

Asn Ile Tyr Leu Gly Phe Gln Gln Gly Tyr Phe Asp Leu Ser Ala Asp
35 40 45

Glu Asn Pro Val Leu His Ile Trp Ser Leu Ala Val Glu Glu Gln Tyr
50 55 60

Tyr Leu Leu Tyr Pro Leu Leu Leu Ile Phe Cys Cys Lys Lys Thr Lys
65 70 75 80

Ser Leu Arg Val Leu Arg Asn Ile Ser Ile Ile Leu Phe Leu Ile Leu
85 90 95

Thr Ala Ser Ser Phe Leu Pro Ser Gly Phe Tyr Thr Asp Ile Leu Asn
100 105 110

Gln Pro Asn Thr Tyr Tyr Leu Ser Thr Leu Arg Phe Pro Glu Leu Leu
115 120 125

Ala Gly Ser Leu Leu Ala Val Tyr Gly Gln Thr Gln Asn Gly Arg Arg
130 135 140

Gln Thr Ala Asn Gly Lys Arg Gln Leu Leu Ser Ser Leu Cys Phe Gly
145 150 155 160

Ala Leu Leu Ala Cys Leu Phe Val Ile Asp Lys His Asn Pro Phe Ile
165 170 175

Pro Gly Met Thr Leu Leu Leu Pro Cys Leu Leu Thr Ala Leu Leu Ile
180 185 190

Arg Ser Met Gln Tyr Gly Thr Leu Pro Thr Arg Ile Leu Ser Ala Ser
195 200 205

Pro Ile Val Phe Val Gly Lys Ile Ser Tyr Ser Leu Tyr Leu Tyr His
210 215 220

Trp Ile Phe Ile Ala Phe Ala Pro Leu Ile Arg Gly Gly Lys Gln Leu
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Gly Leu Pro Ala

<210> 829

<211> 1869

<212> DNA

<213> Neisseria meningitidis

<400> 829

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<210> 830

<211> 622

<212> PRT

<213> Neisseria meningitidis

<400> 830

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20          25          30

Gly Gly Phe Leu Gly Val Asp Ile Phe Phe Val Ile Ser Gly Phe Leu
35          40          45

Ile Thr Gly Ile Ile Leu Ser Glu Ile Gln Asn Gly Ser Phe Ser Phe
50          55          60

Arg Asp Phe Tyr Thr Arg Arg Ile Lys Arg Ile Tyr Pro Ala Phe Ile
65          70          75          80

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Ala Ala Val Ser Leu Ala Ser Val Ile Ala Ser Gln Ile Phe Leu Tyr
 85 90 95
 Glu Asp Phe Asn Gln Met Arg Lys Thr Val Glu Leu Ser Ala Val Phe
 100 105 110
 Leu Ser Asn Ile Tyr Leu Gly Phe Gln Gln Gly Tyr Phe Asp Leu Ser
 115 120 125
 Ala Asp Glu Asn Pro Val Leu His Ile Trp Ser Leu Ala Val Glu Glu
 130 135 140
 Gln Tyr Tyr Leu Leu Tyr Pro Leu Leu Leu Ile Phe Cys Cys Lys Lys
 145 150 155 160
 Thr Lys Ser Leu Arg Val Leu Arg Asn Ile Ser Ile Ile Leu Phe Leu
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 Ile Leu Thr Ala Ser Ser Phe Leu Pro Ser Gly Phe Tyr Thr Asp Ile
 180 185 190
 Leu Asn Gln Pro Asn Thr Tyr Tyr Leu Ser Thr Leu Arg Phe Pro Glu
 195 200 205
 Leu Leu Ala Gly Ser Leu Leu Ala Val Tyr Gly Gln Thr Gln Asn Gly
 210 215 220
 Arg Arg Gln Thr Ala Asn Gly Lys Arg Gln Leu Leu Ser Ser Leu Cys
 225 230 235 240
 Phe Gly Ala Leu Leu Ala Cys Leu Phe Val Ile Asp Lys His Asn Pro
 245 250 255
 Phe Ile Pro Gly Met Thr Leu Leu Leu Pro Cys Leu Leu Thr Ala Leu
 260 265 270
 Leu Ile Arg Ser Met Gln Tyr Gly Thr Leu Pro Thr Arg Ile Leu Ser
 275 280 285
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 290 295 300
 Tyr His Trp Ile Phe Ile Ala Phe Ala His Tyr Ile Thr Gly Asp Lys
 305 310 315 320
 Gln Leu Gly Leu Pro Ala Val Ser Ala Val Ala Ala Leu Thr Ala Gly
 325 330 335
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 340 345 350
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 355 360 365
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gaaaccgtca	aaaggatagc	cgccgtcaaa	cccgtctatg	tttttgcaaa	caacacatca	1560
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cgccccattc	aggctatggg	cgacatcggc	aagagcaatc	aggcggctct	tgatttgatt	1680
aaagatatct	ccaatgtgca	ttgggtggac	gcacaaaaat	acctgccc	aaacacggtc	1740
gaaatatacg	gccgctatct	ttacggcgac	caagaccacc	tgacctattt	cggttcttat	1800
tatatggggc	gggaatttca	caaacacgaa	cgctgctta	aatcttctcg	cgacggcgca	1860
ttgcagtag						1869

<210> 832

<211> 622

<212> PRT

<213> *Neisseria meningitidis*

<400> 832

Met	Gln	Ala	Val	Arg	Tyr	Arg	Pro	Glu	Ile	Asp	Gly	Leu	Arg	Ala	Val
1				5					10					15	

Ala	Val	Leu	Ser	Val	Met	Ile	Phe	His	Leu	Asn	Asn	Arg	Trp	Leu	Pro
		20						25					30		

Gly	Gly	Phe	Leu	Gly	Val	Asp	Ile	Phe	Phe	Val	Ile	Ser	Gly	Phe	Leu
		35					40					45			

Ile	Thr	Gly	Ile	Ile	Leu	Ser	Glu	Ile	Gln	Asn	Gly	Ser	Phe	Ser	Phe
	50					55					60				

Arg	Asp	Phe	Tyr	Thr	Arg	Arg	Ile	Lys	Arg	Ile	Tyr	Pro	Ala	Phe	Ile
65					70				75					80	

Ala	Ala	Val	Ser	Leu	Ala	Ser	Val	Ile	Ala	Ser	Gln	Ile	Phe	Leu	Tyr
				85					90					95	

Glu	Asp	Phe	Asn	Gln	Met	Arg	Lys	Thr	Val	Glu	Leu	Ser	Ala	Val	Phe
				100				105						110	

Leu Ser Asn Ile Tyr Leu Gly Phe Gln Gln Gly Tyr Phe Asp Leu Ser
 115 120 125
 Ala Asp Glu Asn Pro Val Leu His Ile Trp Ser Leu Ala Val Glu Glu
 130 135 140
 Gln Tyr Tyr Leu Leu Tyr Pro Leu Leu Leu Ile Phe Cys Cys Lys Lys
 145 150 155 160
 Thr Lys Ser Leu Arg Val Leu Arg Asn Ile Ser Ile Ile Leu Phe Leu
 165 170 175
 Ile Leu Thr Ala Thr Ser Phe Leu Pro Ser Gly Phe Tyr Thr Asp Ile
 180 185 190
 Leu Asn Gln Pro Asn Thr Tyr Tyr Leu Ser Thr Leu Arg Phe Pro Glu
 195 200 205
 Leu Leu Ala Gly Ser Leu Leu Ala Val Tyr Gly Gln Thr Gln Asn Gly
 210 215 220
 Arg Arg Gln Thr Ala Asn Gly Lys Arg Gln Leu Leu Ser Ser Leu Cys
 225 230 235 240
 Phe Gly Ala Leu Leu Ala Cys Leu Phe Val Ile Asp Lys His Asn Pro
 245 250 255
 Phe Ile Pro Gly Met Thr Leu Leu Leu Pro Cys Leu Leu Thr Ala Leu
 260 265 270
 Leu Ile Arg Ser Met Gln Tyr Gly Thr Leu Pro Thr Arg Ile Leu Ser
 275 280 285
 Ala Ser Pro Ile Val Phe Val Gly Lys Ile Ser Tyr Ser Leu Tyr Leu
 290 295 300
 Tyr His Trp Ile Phe Ile Ala Phe Ala His Tyr Ile Thr Gly Asp Lys
 305 310 315 320
 Gln Leu Gly Leu Pro Ala Val Ser Ala Val Ala Ala Leu Thr Ala Gly
 325 330 335
 Phe Ser Leu Leu Ser Tyr Tyr Leu Ile Glu Gln Pro Leu Arg Lys Arg
 340 345 350
 Lys Met Thr Phe Lys Lys Ala Phe Phe Cys Leu Tyr Leu Ala Pro Ser
 355 360 365
 Leu Ile Leu Val Gly Tyr Asn Leu Tyr Ala Arg Gly Ile Leu Lys Gln
 370 375 380
 Glu His Leu Arg Pro Leu Pro Gly Ala Pro Leu Ala Ala Glu Asn His
 385 390 395 400
 Phe Pro Glu Thr Val Leu Thr Leu Gly Asp Ser His Ala Gly His Leu

405	410	415
Arg Gly Phe Leu Asp Tyr Val Gly Ser Arg Glu Gly Trp Lys Ala Lys		
420	425	430
Ile Leu Ser Leu Asp Ser Glu Cys Leu Val Trp Val Asp Glu Lys Leu		
435	440	445
Ala Asp Asn Pro Leu Cys Arg Lys Tyr Arg Asp Glu Val Glu Lys Ala		
450	455	460
Glu Ala Val Phe Ile Ala Gln Phe Tyr Asp Leu Arg Met Gly Gly Gln		
465	470	475
Pro Val Pro Arg Phe Glu Ala Gln Ser Phe Leu Ile Pro Gly Phe Pro		
485	490	495
Ala Arg Phe Arg Glu Thr Val Lys Arg Ile Ala Ala Val Lys Pro Val		
500	505	510
Tyr Val Phe Ala Asn Asn Thr Ser Ile Ser Arg Ser Pro Leu Arg Glu		
515	520	525
Glu Lys Leu Lys Arg Phe Ala Ala Asn Gln Tyr Leu Arg Pro Ile Gln		
530	535	540
Ala Met Gly Asp Ile Gly Lys Ser Asn Gln Ala Val Phe Asp Leu Ile		
545	550	555
Lys Asp Ile Pro Asn Val His Trp Val Asp Ala Gln Lys Tyr Leu Pro		
565	570	575
Lys Asn Thr Val Glu Ile Tyr Gly Arg Tyr Leu Tyr Gly Asp Gln Asp		
580	585	590
His Leu Thr Tyr Phe Gly Ser Tyr Tyr Met Gly Arg Glu Phe His Lys		
595	600	605
His Glu Arg Leu Leu Lys Ser Ser Arg Asp Gly Ala Leu Gln		
610	615	620

<210> 833
 <211> 1869
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 833
 atgcaagctg tccgatacag gcctgaaatt gacggattgc gggccgctgc cgtgctatcc 60
 gtcattattt tccacctgaa taaccgctgg ctgcccggag gattcctggg ggtggacatt 120
 ttctttgtca tctcgggatt cctcattacc aacatcattc tttctgaaat acagaacggt 180
 tctttttctt tccgggattt ttataccgcg aggattaagc ggatttatcc tgcttttatt 240
 gcggccgtgt ccttggtctt ggtgattgct tctcaaactc tcctttacga agatttcaac 300
 caaatgagga aaaccataga gctttctacg gtttttttgt ccaatattta ttgggggttc 360
 cgattggggg atttcgattt gaggccgcac gagaaccccg tactgcatat ctgggtcttg 420
 gcggtagagg aacagtatta cctcctgtat cctcttttgc tgatattctg ttacaaaaaa 480
 accaaatcac tacgggtgct gcgtaatatc agcatcatcc tgtttctgat tttgaccgca 540

tcatcgtttt	tgccggccgg	gttttatacc	gacatcctca	accaacccaa	tacttattac	600
ctttcgacac	tgaggtttcc	cgagctgttg	gtgggttcgc	tggtggcgg	ttacgggcaa	660
acgcaaaacg	gcagacggca	aacagaaaat	ggaaaacggc	agttgctttc	attactctgt	720
ttcggcgcat	tgcttgctg	cctgttcgtg	atcgacaaac	acgatccgtt	tatcccggga	780
ataaccctgc	tccttccctg	cctgctgacg	gcgctgctta	tccggagtat	gcaatacggg	840
acacttccga	cccgcacatc	gtcggcaagc	cccacgtat	ttgtcggcaa	aatctcttat	900
tccctatacc	tgtaccattg	gatttttatt	gccttcgccc	attacattac	aggcgacaaa	960
cagctcggac	tgctgcccgt	atcggcggtt	gccgcgttga	cggccggatt	ttccctgttg	1020
agctattatt	tgattgaaca	gccgcttaga	aaacggaaga	tgaccttcaa	aaaggcattt	1080
ttctgccttt	atctcgcccc	gtccctgatg	cttgctcggtt	acaacctgta	ttcaagaggg	1140
atattgaaac	aggaacacct	ccgcccgcgtg	cccggcacgc	ccgttgctgc	ggaaaataat	1200
tttccggaaa	ccgtcttgac	cctcggcgac	tcgcacgccg	gacacctgcg	ggggtttctg	1260
gattatgtcg	gcggcaggga	agggtggaaa	gctaaaatcc	tgtccctcga	ttcggagtgt	1320
ttggtttggg	tggtatgagaa	gctggcagac	aaccggttgt	gccgaaaata	ccgggatgaa	1380
gttgaaaaag	ccgaagctgt	tttcattgcc	caattctatg	atttgaggat	gggcggccag	1440
cccgtgccga	gatttgaagc	gcaatccttc	ctgatacccg	ggttcaaagc	ccgatttcagg	1500
gaaaccgtca	agaggatagc	cgccgtcaaa	cctgtatatg	tttttgcaaa	caatacatca	1560
atcagccgtt	ctcccttgag	ggaggaaaaa	ttgaaaagat	ttgctataaa	ccaatacctc	1620
cggcctattc	gggctatggg	cgacatcggc	aagagcaatc	aggcgggtctt	tgatttggtt	1680
aaagatattc	ccaatgtgca	ttgggtggac	gcacaaaaat	acctgcccaa	aaacacggtc	1740
gaaatacacg	gacgctatct	ttacggcgac	caagaccacc	tgacctattt	cggttcttat	1800
tatatggggc	gggaatttca	caaacacgaa	cgctgtctca	agcattcccg	aggcggcgca	1860
ttgcagtag						1869

<210> 834

<211> 622

<212> PRT

<213> Neisseria gonorrhoeae

<400> 834

Met	Gln	Ala	Val	Arg	Tyr	Arg	Pro	Glu	Ile	Asp	Gly	Leu	Arg	Ala	Val
1			5					10					15		

Ala	Val	Leu	Ser	Val	Ile	Ile	Phe	His	Leu	Asn	Asn	Arg	Trp	Leu	Pro
			20					25					30		

Gly	Gly	Phe	Leu	Gly	Val	Asp	Ile	Phe	Phe	Val	Ile	Ser	Gly	Phe	Leu
		35					40					45			

Ile	Thr	Asn	Ile	Ile	Leu	Ser	Glu	Ile	Gln	Asn	Gly	Ser	Phe	Ser	Phe
	50					55					60				

Arg	Asp	Phe	Tyr	Thr	Arg	Arg	Ile	Lys	Arg	Ile	Tyr	Pro	Ala	Phe	Ile
	65					70				75				80	

Ala	Ala	Val	Ser	Leu	Ala	Ser	Val	Ile	Ala	Ser	Gln	Ile	Phe	Leu	Tyr
				85					90					95	

Glu	Asp	Phe	Asn	Gln	Met	Arg	Lys	Thr	Ile	Glu	Leu	Ser	Thr	Val	Phe
			100					105					110		

Leu	Ser	Asn	Ile	Tyr	Leu	Gly	Phe	Arg	Leu	Gly	Tyr	Phe	Asp	Leu	Ser
		115					120					125			

Ala	Asp	Glu	Asn	Pro	Val	Leu	His	Ile	Trp	Ser	Leu	Ala	Val	Glu	Glu
	130						135					140			

Gln Tyr Tyr Leu Leu Tyr Pro Leu Leu Leu Ile Phe Cys Tyr Lys Lys	145	150	155	160
Thr Lys Ser Leu Arg Val Leu Arg Asn Ile Ser Ile Ile Leu Phe Leu	165	170	175	
Ile Leu Thr Ala Ser Ser Phe Leu Pro Ala Gly Phe Tyr Thr Asp Ile	180	185	190	
Leu Asn Gln Pro Asn Thr Tyr Tyr Leu Ser Thr Leu Arg Phe Pro Glu	195	200	205	
Leu Leu Val Gly Ser Leu Leu Ala Val Tyr Gly Gln Thr Gln Asn Gly	210	215	220	
Arg Arg Gln Thr Glu Asn Gly Lys Arg Gln Leu Leu Ser Leu Leu Cys	225	230	235	240
Phe Gly Ala Leu Leu Val Cys Leu Phe Val Ile Asp Lys His Asp Pro	245	250	255	
Phe Ile Pro Gly Ile Thr Leu Leu Leu Pro Cys Leu Leu Thr Ala Leu	260	265	270	
Leu Ile Arg Ser Met Gln Tyr Gly Thr Leu Pro Thr Arg Ile Leu Ser	275	280	285	
Ala Ser Pro Ile Val Phe Val Gly Lys Ile Ser Tyr Ser Leu Tyr Leu	290	295	300	
Tyr His Trp Ile Phe Ile Ala Phe Ala His Tyr Ile Thr Gly Asp Lys	305	310	315	320
Gln Leu Gly Leu Pro Ala Val Ser Ala Val Ala Ala Leu Thr Ala Gly	325	330	335	
Phe Ser Leu Leu Ser Tyr Tyr Leu Ile Glu Gln Pro Leu Arg Lys Arg	340	345	350	
Lys Met Thr Phe Lys Lys Ala Phe Phe Cys Leu Tyr Leu Ala Pro Ser	355	360	365	
Leu Met Leu Val Gly Tyr Asn Leu Tyr Ser Arg Gly Ile Leu Lys Gln	370	375	380	
Glu His Leu Arg Pro Leu Pro Gly Thr Pro Val Ala Ala Glu Asn Asn	385	390	395	400
Phe Pro Glu Thr Val Leu Thr Leu Gly Asp Ser His Ala Gly His Leu	405	410	415	
Arg Gly Phe Leu Asp Tyr Val Gly Gly Arg Glu Gly Trp Lys Ala Lys	420	425	430	
Ile Leu Ser Leu Asp Ser Glu Cys Leu Val Trp Val Asp Glu Lys Leu				

435	440	445
Ala Asp Asn Pro Leu Cys Arg Lys Tyr Arg Asp Glu Val Glu Lys Ala		
450	455	460
Glu Ala Val Phe Ile Ala Gln Phe Tyr Asp Leu Arg Met Gly Gly Gln		
465	470	475 480
Pro Val Pro Arg Phe Glu Ala Gln Ser Phe Leu Ile Pro Gly Phe Lys		
	485	490 495
Ala Arg Phe Arg Glu Thr Val Lys Arg Ile Ala Ala Val Lys Pro Val		
	500	505 510
Tyr Val Phe Ala Asn Asn Thr Ser Ile Ser Arg Ser Pro Leu Arg Glu		
	515	520 525
Glu Lys Leu Lys Arg Phe Ala Ile Asn Gln Tyr Leu Arg Pro Ile Arg		
	530	535 540
Ala Met Gly Asp Ile Gly Lys Ser Asn Gln Ala Val Phe Asp Leu Val		
545	550	555 560
Lys Asp Ile Pro Asn Val His Trp Val Asp Ala Gln Lys Tyr Leu Pro		
	565	570 575
Lys Asn Thr Val Glu Ile His Gly Arg Tyr Leu Tyr Gly Asp Gln Asp		
	580	585 590
His Leu Thr Tyr Phe Gly Ser Tyr Tyr Met Gly Arg Glu Phe His Lys		
	595	600 605
His Glu Arg Leu Leu Lys His Ser Arg Gly Gly Ala Leu Gln		
610	615	620

<210> 835

<211> 263

<212> DNA

<213> Neisseria meningitidis

<400> 835

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gtcgtggcaa cgcgggcggt tcggtattgg gtctgttggt ggcgttggcg cgcctgattc	120

acttggaataa agccgggtgcg ccgatgcgcg tgctggcgtg ggcgttgcg aaagtctcgc	180
tgctgtatgt tacgctgttc cggggtacgc cgctgtttgt gcagattgtg atttgggcgt	240
atgtgtggtt tccgtttttc gtc	263

<210> 836

<211> 88

<212> PRT

<213> Neisseria meningitidis

<220>

<221> misc_feature

<222> (24)..(24)

<223> Xaa= any amino acid

<400> 836

Ile Ile Tyr Glu Tyr Arg Trp Met Phe Leu Tyr Gly Ala Leu Thr Thr
1 5 10 15

Leu Gly Leu Thr Val Val Ala Xaa Ala Gly Gly Ser Val Leu Gly Leu
20 25 30

Leu Leu Ala Leu Ala Arg Leu Ile His Leu Glu Lys Ala Gly Ala Pro
35 40 45

Met Arg Val Leu Ala Trp Ala Leu Arg Lys Val Ser Leu Leu Tyr Val
50 55 60

Thr Leu Phe Arg Gly Thr Pro Leu Phe Val Gln Ile Val Ile Trp Ala
65 70 75 80

Tyr Val Trp Phe Pro Phe Phe Val
85

<210> 837

<211> 747

<212> DNA

<213> Neisseria meningitidis

<400> 837

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gcgttggcgc	gcctgattca	cttggaaaaa	gccggtgcgc	cgatgcgcgt	gctggcggtg	180
gcgttgcgta	aagtttcgct	gctgtatggt	acgctgttcc	ggggtacgcc	gctgtttgtg	240
cagattgtga	tttgggcgta	tgtgtggttt	ccgtttttcg	tccatccttc	agacggcatt	300
ttggtcagcg	gcgagggcgg	aatcgcgctg	cgtcgcggtt	acgggcccgt	gattgccggt	360
tctttggcac	tgatcgccaa	ctcgggggcg	tatatctgtg	agattttccg	cgcgggcac	420
cagtcctatg	acaaaggaca	gatggaggcg	gcgcgttctt	tggggctgac	ctatccgcag	480
gcgatgcgct	atgtgattct	gccgcaggca	ttgcgcgcga	tgctgccgcc	tttggcgagc	540
gagttcatca	cgctcttgaa	agacagctcg	ctgctgtcgg	tcattgctgt	ggcggagttg	600
gcgtatgttc	agaatacgat	tacgggcccgg	tattcggttt	atgaagaacc	gctttacacc	660
gtcgccctga	tttatctgtt	gatgacgact	ttcttaggct	ggatattcct	gcgtttggaa	720
aaacgttaca	atccgcaaca	ccgctga				747

<210> 838

<211> 248

<212> PRT

<213> Neisseria meningitidis

<400> 838

Met Asp Phe Arg Phe Asp Ile Ile Tyr Glu Tyr Arg Trp Met Phe Leu
1 5 10 15

Tyr Gly Ala Leu Thr Thr Leu Gly Leu Thr Val Val Ala Thr Ala Gly
20 25 30

Gly Ser Val Leu Gly Leu Leu Leu Ala Leu Ala Arg Leu Ile His Leu
35 40 45

Glu Lys Ala Gly Ala Pro Met Arg Val Leu Ala Trp Ala Leu Arg Lys
 50 55 60
 Val Ser Leu Leu Tyr Val Thr Leu Phe Arg Gly Thr Pro Leu Phe Val
 65 70 75 80
 Gln Ile Val Ile Trp Ala Tyr Val Trp Phe Pro Phe Phe Val His Pro
 85 90 95
 Ser Asp Gly Ile Leu Val Ser Gly Glu Ala Ala Ile Ala Leu Arg Arg
 100 105 110
 Gly Tyr Gly Pro Leu Ile Ala Gly Ser Leu Ala Leu Ile Ala Asn Ser
 115 120 125
 Gly Ala Tyr Ile Cys Glu Ile Phe Arg Ala Gly Ile Gln Ser Ile Asp
 130 135 140
 Lys Gly Gln Met Glu Ala Ala Arg Ser Leu Gly Leu Thr Tyr Pro Gln
 145 150 155 160
 Ala Met Arg Tyr Val Ile Leu Pro Gln Ala Leu Arg Arg Met Leu Pro
 165 170 175
 Pro Leu Ala Ser Glu Phe Ile Thr Leu Leu Lys Asp Ser Ser Leu Leu
 180 185 190
 Ser Val Ile Ala Val Ala Glu Leu Ala Tyr Val Gln Asn Thr Ile Thr
 195 200 205
 Gly Arg Tyr Ser Val Tyr Glu Glu Pro Leu Tyr Thr Val Ala Leu Ile
 210 215 220
 Tyr Leu Leu Met Thr Thr Phe Leu Gly Trp Ile Phe Leu Arg Leu Glu
 225 230 235 240
 Lys Arg Tyr Asn Pro Gln His Arg
 245

<210> 839
 <211> 747
 <212> DNA
 <213> Neisseria meningitidis

<400> 839
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 acgaccttgg ggctgacggg cgtggcgacg gcgggcggtt cggtattggg tctgttggtg 120
 gcgttggcgc gcctgattca cttggaaaaa gccggtgcgc cgatgcgcgt gctggcggtg 180
 gcgttgcgta aggtttcgct gctgtatgtt acgctgttcc ggggtacgcc gctgtttgtg 240
 cagattgtga tttgggcgta tgtgtggttt ccgtttttcg tccatccttc agacggcatt 300
 ttggttagcg gcgaggcggc aatcgcgctg cgtcgcggtt acggggcggt gattgcccgt 360
 tctttggcac tgatcgccaa ctcgggggcg tatatctgtg agattttccg cgcgggcatc 420
 cagtctatag acaaaggaca gatggaggcg gcgcgttctt tggggctgac ctatccgcag 480
 gcgatgcgct atgtgattct gccgcaggca ttgcgccgta tgctgccgcc tttggcgagc 540

gagttcatca	cgctcttgaa	agacagctcg	ctgctgtcgg	tcattgctgt	ggcggagttg	600
gcgtatgttc	agaatacgat	tacgggcccgg	tattcggttt	atgaagaacc	gctttacacc	660
gtcgccctga	tttatctgtt	gatgacgact	ttcttaggct	ggatattcct	gcgtttgga	720
aaacgttaca	atccgcaaca	ccgctga				747

<210> 840
 <211> 248
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 840
 Met Asp Phe Arg Phe Asp Ile Ile Tyr Glu Tyr Arg Trp Met Phe Leu
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 Tyr Gly Ala Leu Thr Thr Leu Gly Leu Thr Val Val Ala Thr Ala Gly
 20 25 30
 Gly Ser Val Leu Gly Leu Leu Leu Ala Leu Ala Arg Leu Ile His Leu
 35 40 45
 Glu Lys Ala Gly Ala Pro Met Arg Val Leu Ala Trp Ala Leu Arg Lys
 50 55 60
 Val Ser Leu Leu Tyr Val Thr Leu Phe Arg Gly Thr Pro Leu Phe Val
 65 70 75 80
 Gln Ile Val Ile Trp Ala Tyr Val Trp Phe Pro Phe Phe Val His Pro
 85 90 95
 Ser Asp Gly Ile Leu Val Ser Gly Glu Ala Ala Ile Ala Leu Arg Arg
 100 105 110
 Gly Tyr Gly Pro Leu Ile Ala Gly Ser Leu Ala Leu Ile Ala Asn Ser
 115 120 125
 Gly Ala Tyr Ile Cys Glu Ile Phe Arg Ala Gly Ile Gln Ser Ile Asp
 130 135 140
 Lys Gly Gln Met Glu Ala Ala Arg Ser Leu Gly Leu Thr Tyr Pro Gln
 145 150 155 160
 Ala Met Arg Tyr Val Ile Leu Pro Gln Ala Leu Arg Arg Met Leu Pro
 165 170 175
 Pro Leu Ala Ser Glu Phe Ile Thr Leu Leu Lys Asp Ser Ser Leu Leu
 180 185 190
 Ser Val Ile Ala Val Ala Glu Leu Ala Tyr Val Gln Asn Thr Ile Thr
 195 200 205
 Gly Arg Tyr Ser Val Tyr Glu Glu Pro Leu Tyr Thr Val Ala Leu Ile
 210 215 220
 Tyr Leu Leu Met Thr Thr Phe Leu Gly Trp Ile Phe Leu Arg Leu Glu
 225 230 235 240

Lys Arg Tyr Asn Pro Gln His Arg
245

<210> 841
<211> 8
<212> DNA
<213> Neisseria gonorrhoeae

<220>
<221> misc_feature
<222> (1)..(8)
<223> N = Unknown

<400> 841
nnnnnnnn

8

<210> 842
<211> 174
<212> PRT
<213> Neisseria gonorrhoeae

<400> 842
Met Asp Phe Arg Phe Asp Ile Ile Tyr Glu Tyr Arg Trp Met Phe Leu
1 5 10 15

Tyr Gly Ala Leu Thr Thr Leu Gly Leu Thr Val Val Ala Thr Ala Gly
20 25 30

Gly Ser Val Leu Gly Leu Leu Leu Ala Leu Ala Arg Leu Ile His Leu
35 40 45

Glu Lys Ala Gly Ala Pro Met Arg Val Leu Ala Trp Ala Leu Arg Lys
50 55 60

Val Ser Leu Leu Tyr Val Thr Leu Phe Arg Gly Thr Pro Leu Phe Val
65 70 75 80

Gln Ile Val Ile Trp Ala Tyr Val Trp Phe Pro Phe Phe Val Ile Leu
85 90 95

His Thr Ala Phe Leu Gly Asn Ala Met Arg Gln Ser Arg Arg Val Pro
100 105 110

Asp Lys Gly Arg Trp Ile Ala Gly Ser Leu Glu Leu Asn Cys Gln Pro
115 120 125

Arg Gly Arg Lys Thr Arg Gly Glu Phe Pro Pro Gly Glu Ser Asn Leu

130

135

140

Gly Thr Glu Pro Arg Asn Pro Leu Ser Met Gly Gln Arg Arg Phe Pro
145 150 155 160

Gly Cys Glu Asn Trp Tyr Pro Pro Gln Asn Phe Ile Lys Lys
165 170

<210> 843
 <211> 747
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 843
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 acgaccttgg ggctgacggg cgtggcgacg gcgggcggtt cgggtattggg tctgttgttg 120
 gcgttggcgc gcctgattca cttggaaaaa gccggtgcgc cgatgcgcgt gctggcgtgg 180
 gcgttgcgta aggtttcgct gctgtacgtt accctgttcc ggggtacgcc gctgtttgtg 240
 cagattgtga tttgggcgta tgtgtggttt ccgtttttcg tccatccttc agacggcatt 300
 ttggtcagcg gcgaggcggc aatcgcgctg cgtcgcggtt acgggcccgt gattgccggg 360
 tctttggcac tgatcgccaa ctcgggggcg tatactctgt agattttccg cgcgggcatc 420
 cagtctatag acaaaggaca gatggaggcg gcgtgttctt tgggactgac ctatccgcag 480
 gcgatgcgt atgtgattct gccgcaggca ttgcgccgta tgctgccgcc tttggcgagc 540
 gagttcatca cgctcttgaa agacagctcg ctgctgtcgg tcattgctgt ggcggagttg 600
 gcgtatgttc agaatacgat tacgggcccgg tattcggttt atgaagaacc gctttacacc 660
 gccgccctga tttatctgtt gatgacgact ttcttaggct ggatattcct gcgtttggaa 720
 aaacgttaca atccgcaaca ccgctga 747

<210> 844
 <211> 248
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 844
 Met Asp Phe Arg Phe Asp Ile Ile Tyr Glu Tyr Arg Trp Met Phe Leu
 1 5 10 15
 Tyr Gly Ala Leu Thr Thr Leu Gly Leu Thr Val Val Ala Thr Ala Gly
 20 25 30
 Gly Ser Val Leu Gly Leu Leu Leu Ala Leu Ala Arg Leu Ile His Leu
 35 40 45
 Glu Lys Ala Gly Ala Pro Met Arg Val Leu Ala Trp Ala Leu Arg Lys
 50 55 60
 Val Ser Leu Leu Tyr Val Thr Leu Phe Arg Gly Thr Pro Leu Phe Val
 65 70 75 80
 Gln Ile Val Ile Trp Ala Tyr Val Trp Phe Pro Phe Phe Val His Pro
 85 90 95
 Ser Asp Gly Ile Leu Val Ser Gly Glu Ala Ala Ile Ala Leu Arg Arg
 100 105 110
 Gly Tyr Gly Pro Leu Ile Ala Gly Ser Leu Ala Leu Ile Ala Asn Ser
 115 120 125
 Gly Ala Tyr Ile Cys Glu Ile Phe Arg Ala Gly Ile Gln Ser Ile Asp
 130 135 140
 Lys Gly Gln Met Glu Ala Ala Arg Ser Leu Gly Leu Thr Tyr Pro Gln
 145 150 155 160

Ala Met Arg Tyr Val Ile Leu Pro Gln Ala Leu Arg Arg Met Leu Pro
165 170 175

Pro Leu Ala Ser Glu Phe Ile Thr Leu Leu Lys Asp Ser Ser Leu Leu
180 185 190

Ser Val Ile Ala Val Ala Glu Leu Ala Tyr Val Gln Asn Thr Ile Thr
195 200 205

Gly Arg Tyr Ser Val Tyr Glu Glu Pro Leu Tyr Thr Val Ala Leu Ile
210 215 220

Tyr Leu Leu Met Thr Thr Phe Leu Gly Trp Ile Phe Leu Arg Leu Glu
225 230 235 240

Lys Arg Tyr Asn Pro Gln His Arg
245

<210> 845
<211> 583
<212> DNA
<213> Neisseria meningitidis

<400> 845
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ggttttaccg cgctcgccgt cggcttcacatc ctgctcgcca agctgcgtga gcttcaccat 180
cacgaactct tacgtaaaca ctacgtccgc attattacy tgcaccaact ctttgccgcc 240
gcaggctagt ttgtggacag gcgcggcgwa attacaaaac ctgcccgyt ccgcgccct 300
gcacctgatt accctcggcg gcatgatggg cggcgtgatg atggtgtggc tgaccgcgg 360
actgtggcac agcggcttta ccaaactcga ctacccaaa ctctgccgca ttgccgtccc 420
cattccttttc gccgcgcgcg tctcgcgcgc tttcttgtrg aacgtgaacc cgrtattttt 480
cattaccggt cctgcgattc tgaccgcgcg cgtattcgta ctgtatcttt tcrctttat 540
accgatattt cgggcgaatg cgtttacaga cgatccggar tar 583

<210> 846
<211> 193
<212> PRT
<213> Neisseria meningitidis

<220>
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<222> (90)..(90)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (153)..(153)

<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (158)..(158)
<223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (178)..(178)

<223> Xaa= any amino acid

<400> 846

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1 5 10 15

Tyr Lys Asn Ile Ala Ile Thr Phe Leu Leu His Ala Ala Ala Glu
20 25 30

Leu Trp Leu Pro Ala Gln Thr Ala Gly Phe Thr Ala Leu Ala Val Gly
35 40 45

Phe Ile Leu Leu Ala Lys Leu Arg Glu Leu His His His Glu Leu Leu
50 55 60

Arg Lys His Tyr Val Arg Thr Tyr Tyr Leu Leu Gln Leu Phe Ala Ala
65 70 75 80

Ala Gly Ser Leu Trp Thr Gly Ala Ala Xaa Leu Gln Asn Leu Pro Ala
85 90 95

Ser Ala Pro Leu His Leu Ile Thr Leu Gly Gly Met Met Gly Gly Val
100 105 110

Met Met Val Trp Leu Thr Ala Gly Leu Trp His Ser Gly Phe Thr Lys
115 120 125

Leu Asp Tyr Pro Lys Leu Cys Arg Ile Ala Val Pro Ile Leu Phe Ala
130 135 140

Ala Ala Val Ser Arg Ala Phe Leu Xaa Asn Val Asn Pro Xaa Phe Phe
145 150 155 160

Ile Thr Val Pro Ala Ile Leu Thr Ala Ala Val Phe Val Leu Tyr Leu
165 170 175

Phe Xaa Phe Ile Pro Ile Phe Arg Ala Asn Ala Phe Thr Asp Asp Pro
180 185 190

Glu

<210> 847

<211> 1074

<212> DNA

<213> Neisseria meningitidis

<400> 847

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gcatacggcg gttttttgac tgcggctttg ttggactgga cgggtttttc gggtaacctg 180
aaacctgtcg cgaactttgat ggcggcatta ttgctcgccg catccgctat actgcccttt 240

tcgccgcaaa	ctgcctcggt	tttcgtcgcc	gcctattggc	tggtgttgct	gctgttctgc	300
gcccggctga	tttggttaga	ccgaaacacc	gacaacttcg	ccctgctaata	gttacttgcc	360
gcgttctactg	tttttcagac	ggcatatgcc	gtcagcggcg	atttgaacct	gttgcgcgcg	420
caagtgcac	taaatatggc	ggcgggtgatg	ttcgtatccg	tgcgcgctcag	tattcttttg	480
ggcgcggaag	ccctgaaaga	atgccgtctg	aaagaccctg	tttttattcc	aaatatcggt	540
tataaaaaca	tcgccattac	tttcctgctc	ttgcacggcg	ccgcggaact	ttggctgccc	600
gcgcaaaccg	ccggttttac	cgcgctcgcc	gtcgggttca	tcctgctcgc	caagctgcgt	660
gagcttcacc	atcacgaact	cttacgtaaa	cactacgtcc	gcacttatta	cctgctccaa	720
ctctttgccg	ccgcaggcta	tttgtggaca	ggcgcggcga	aattacaaaa	cctgcccggc	780
tccgcgcccc	tgcacctgat	taccctcggc	ggcatgatgg	gcggcggtgat	gatggtgtgg	840
ctgaccgccc	gactgtggca	cagcggtttt	accaaactcg	actaccccaa	actctgcgcg	900
attgccgtcc	ccatcctttt	cgcgcgcgcc	gtctcgcgcg	ctttcttgat	gaacgtgaac	960
ccgatatttt	tcattaccgt	tcctgcgatt	ctgaccgccc	ccgtattcgt	actgtatctt	1020
ttcacgttta	taccgatatt	tcgggcgaat	gcgtttacag	acgatccgga	ataa	1074

<210> 848

<211> 357

<212> PRT

<213> Neisseria meningitidis

<400> 848

Met	Arg	Pro	Phe	Phe	Val	Gly	Ala	Ala	Val	Leu	Ala	Ile	Leu	Gly	Ala
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Leu	Val	Phe	Phe	Ile	Asn	Pro	Gly	Ala	Ile	Val	Leu	His	Arg	Gln	Ile
			20					25					30		

Phe	Leu	Glu	Leu	Met	Leu	Pro	Ala	Ala	Tyr	Gly	Gly	Phe	Leu	Thr	Ala
		35					40					45			

Ala	Leu	Leu	Asp	Trp	Thr	Gly	Phe	Ser	Gly	Asn	Leu	Lys	Pro	Val	Ala
	50					55					60				

Thr	Leu	Met	Ala	Ala	Leu	Leu	Leu	Ala	Ala	Ser	Ala	Ile	Leu	Pro	Phe
65					70					75					80

Ser	Pro	Gln	Thr	Ala	Ser	Phe	Phe	Val	Ala	Ala	Tyr	Trp	Leu	Val	Leu
			85						90					95	

Leu	Leu	Phe	Cys	Ala	Arg	Leu	Ile	Trp	Leu	Asp	Arg	Asn	Thr	Asp	Asn
		100						105					110		

Phe	Ala	Leu	Leu	Met	Leu	Leu	Ala	Ala	Phe	Thr	Val	Phe	Gln	Thr	Ala
		115					120					125			

Tyr	Ala	Val	Ser	Gly	Asp	Leu	Asn	Leu	Leu	Arg	Ala	Gln	Val	His	Leu
	130					135				140					

Asn	Met	Ala	Ala	Val	Met	Phe	Val	Ser	Val	Arg	Val	Ser	Ile	Leu	Leu
145					150					155				160	

Gly	Ala	Glu	Ala	Leu	Lys	Glu	Cys	Arg	Leu	Lys	Asp	Pro	Val	Phe	Ile
				165					170					175	

Pro	Asn	Ile	Val	Tyr	Lys	Asn	Ile	Ala	Ile	Thr	Phe	Leu	Leu	Leu	His
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

180	185	190
Ala Ala Ala Glu Leu Trp Leu Pro Ala Gln Thr Ala Gly Phe Thr Ala		
195	200	205
Leu Ala Val Gly Phe Ile Leu Leu Ala Lys Leu Arg Glu Leu His His		
210	215	220
His Glu Leu Leu Arg Lys His Tyr Val Arg Thr Tyr Tyr Leu Leu Gln		
225	230	235
Leu Phe Ala Ala Ala Gly Tyr Leu Trp Thr Gly Ala Ala Lys Leu Gln		
	245	250
Asn Leu Pro Ala Ser Ala Pro Leu His Leu Ile Thr Leu Gly Gly Met		
	260	270
Met Gly Gly Val Met Met Val Trp Leu Thr Ala Gly Leu Trp His Ser		
	275	285
Gly Phe Thr Lys Leu Asp Tyr Pro Lys Leu Cys Arg Ile Ala Val Pro		
	290	300
Ile Leu Phe Ala Ala Ala Val Ser Arg Ala Phe Leu Met Asn Val Asn		
305	310	315
Pro Ile Phe Phe Ile Thr Val Pro Ala Ile Leu Thr Ala Ala Val Phe		
	325	330
Val Leu Tyr Leu Phe Thr Phe Ile Pro Ile Phe Arg Ala Asn Ala Phe		
	340	350
Thr Asp Asp Pro Glu		
355		

<210> 849
 <211> 1074
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (918)..(918)
 <223> N= Unknown

<400> 849		
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gcatacggcg gttttttgac tgcggctttg ttggactgga cgggtttttc gggtaacctg		180
aaacctgtcg cgactttgat ggcggcatta ttgctcgccg catccgctat actgcccttt		240
tcgccgcaaa ctgcctcgtt tttcgtcgcc gcctattggc tgggtgttgc gctgttctgc		300
gcccggtga tttggctaga ccgaaacacc gacaacttcg ccctgcta gttacttgcc		360
gcgttcactg tttttcagac ggcataatgcc gtcagcgggc atttgaacct gttgcgcgcg		420
caagtgcac taaatatggc ggcggtgatg ttcgtatccg tgcgcgtcag tattcttttg		480
ggcgcggaag ccctgaaaga atgccgtctg aaagaccag tattcatccc caatgtcgtc		540

tataaaaaaca	tcgccattac	cttcctgctc	ctgcacgccg	ccgccgaact	ttggctgcct	600
gcgcaaaccg	ccggttttac	ctcgtcgcc	gtcggcttta	tcctgcttgc	caagctgcgt	660
gagcttcacc	atcacgaact	cctgcgcaaa	cactacgtcc	gcacttatta	cctgctccaa	720
ctctttgccg	ccgcaggcta	tttgtggaca	ggcgcggcga	aattacaaaa	cctgcccgcc	780
tccgcgcccc	tgcacctgat	taccctcggt	ggcatgatgg	gcagcgtgat	gatggtgtgg	840
ctgactgccg	gactgtggca	cagcggcttt	accaagctcg	actaccgaa	actctgccgc	900
atcgccgtcc	ccatcctntt	cgccgcgcgc	gtttcgcgcg	ctgttttaat	gaacgtaaac	960
ccgatattct	tcatcacctg	ccccgcaatt	ctgaccgcgc	ccgtgttcgt	gctttacctg	1020
ctgacattcg	taccgatctt	tcgggcgaac	gcgtttacag	acgatccgga	ataa	1074

<210> 850
 <211> 357
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 850

Met	Arg	Pro	Phe	Phe	Val	Gly	Ala	Ala	Val	Leu	Ala	Ile	Leu	Gly	Ala
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Leu	Val	Phe	Phe	Ile	Asn	Pro	Gly	Ala	Ile	Val	Leu	His	Arg	Gln	Ile
				20				25					30		
Phe	Leu	Glu	Leu	Met	Leu	Pro	Ala	Ala	Tyr	Gly	Gly	Phe	Leu	Thr	Ala
		35					40					45			
Ala	Leu	Leu	Asp	Trp	Thr	Gly	Phe	Ser	Gly	Asn	Leu	Lys	Pro	Val	Ala
		50				55					60				
Thr	Leu	Met	Ala	Ala	Leu	Leu	Ala	Ala	Ser	Ala	Ile	Leu	Pro	Phe	
65					70				75					80	
Ser	Pro	Gln	Thr	Ala	Ser	Phe	Phe	Val	Ala	Ala	Tyr	Trp	Leu	Val	Leu
				85					90					95	
Leu	Leu	Phe	Cys	Ala	Arg	Leu	Ile	Trp	Leu	Asp	Arg	Asn	Thr	Asp	Asn
			100					105					110		
Phe	Ala	Leu	Leu	Met	Leu	Leu	Ala	Ala	Phe	Thr	Val	Phe	Gln	Thr	Ala
		115					120					125			
Tyr	Ala	Val	Ser	Gly	Asp	Leu	Asn	Leu	Leu	Arg	Ala	Gln	Val	His	Leu
	130					135					140				
Asn	Met	Ala	Ala	Val	Met	Phe	Val	Ser	Val	Arg	Val	Ser	Ile	Leu	Leu
145					150					155				160	
Gly	Ala	Glu	Ala	Leu	Lys	Glu	Cys	Arg	Leu	Lys	Asp	Pro	Val	Phe	Ile
				165					170					175	
Pro	Asn	Val	Val	Tyr	Lys	Asn	Ile	Ala	Ile	Thr	Phe	Leu	Leu	Leu	His
			180					185					190		
Ala	Ala	Ala	Glu	Leu	Trp	Leu	Pro	Ala	Gln	Thr	Ala	Gly	Phe	Thr	Ser

195

200

205

Leu Ala Val Gly Phe Ile Leu Leu Ala Lys Leu Arg Glu Leu His His
 210 215 220
 His Glu Leu Leu Arg Lys His Tyr Val Arg Thr Tyr Tyr Leu Leu Gln
 225 230 235 240
 Leu Phe Ala Ala Ala Gly Tyr Leu Trp Thr Gly Ala Ala Lys Leu Gln
 245 250 255
 Asn Leu Pro Ala Ser Ala Pro Leu His Leu Ile Thr Leu Gly Gly Met
 260 265 270
 Met Gly Ser Val Met Met Val Trp Leu Thr Ala Gly Leu Trp His Ser
 275 280 285
 Gly Phe Thr Lys Leu Asp Tyr Pro Lys Leu Cys Arg Ile Ala Val Pro
 290 295 300
 Ile Leu Phe Ala Ala Ala Val Ser Arg Ala Val Leu Met Asn Val Asn
 305 310 315 320
 Pro Ile Phe Phe Ile Thr Val Pro Ala Ile Leu Thr Ala Ala Val Phe
 325 330 335
 Val Leu Tyr Leu Leu Thr Phe Val Pro Ile Phe Arg Ala Asn Ala Phe
 340 345 350
 Thr Asp Asp Pro Glu
 355

<210> 851
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N = Unknown

<400> 851
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8

<210> 852
 <211> 364
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 852
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 1 5 10 15

Ala Val Leu Ala Ile Leu Gly Ala Leu Val Phe Phe His Gln Pro Arg
 20 25 30

Arg Tyr His Pro Ala Pro Pro Asn Phe Leu Gly Thr Tyr Ala Ala Gly

35	40	45
Cys Ile Arg Arg Phe Phe Asp Tyr Arg Phe Val Gly Pro Asp Gly Phe		
50	55	60
Phe Arg Gln Pro Glu Thr Cys Arg Tyr Phe Asp Gly Gly Val Val Ala		
65	70	75
Cys Cys Gly Cys Phe Ile Ala Val Phe Thr Ala Thr Cys Arg Ile Phe		
85	90	95
Arg Arg Arg Leu Leu Ala Gly Val Ala Ala Val Leu Arg Leu Ala Asp		
100	105	110
Leu Ala Arg Arg Gln His Arg Thr Leu Arg Ser Val Asp Val Thr Ala		
115	120	125
Ala Phe Thr Val Phe Gln Thr Ala Tyr Ala Val Ser Gly Asp Leu Asn		
130	135	140
Leu Leu Arg Ala Gln Val His Leu Asn Met Ala Ala Val Met Phe Val		
145	150	155
Ser Val Arg Val Ser Val Leu Leu Gly Thr Glu Thr Leu Lys Glu Cys		
165	170	175
Arg Leu Lys Asp Pro Val Phe Ile Pro Asn Val Ile Tyr Lys Asn Ile		
180	185	190
Ala Ile Thr Leu Leu Leu His Ala Ala Ala Glu Leu Trp Leu Pro Ala		
195	200	205
Gln Thr Ala Gly Phe Thr Ala Leu Ala Val Gly Phe Ile Leu Leu Ala		
210	215	220
Lys Leu Arg Glu Leu His His His Glu Leu Leu Arg Lys His Tyr Val		
225	230	235
Arg Thr Tyr Tyr Leu Leu Gln Leu Phe Ala Ala Ala Gly Tyr Leu Trp		
245	250	255
Thr Gly Ala Ala Lys Leu Gln Asn Leu Pro Ala Ser Ala Pro Leu His		
260	265	270
Leu Ile Thr Leu Gly Gly Met Thr Gly Gly Val Met Met Val Trp Leu		
275	280	285
Thr Ala Gly Leu Trp His Ser Gly Phe Thr Lys Leu Asp Tyr Pro Lys		
290	295	300
Leu Cys Arg Ile Ala Val Ser Ile Leu Phe Ala Ser Ala Val Ser Arg		
305	310	315
Ala Val Leu Met Asn Val Asn Pro Ile Phe Phe Ile Thr Val Pro Glu		
325	330	335

Ile Leu Thr Ala Ala Val Phe Met Leu Tyr Leu Leu Thr Phe Val Pro
 340 345 350

Ile Phe Arg Ala Asn Ala Phe Thr Asp Asp Pro Glu
 355 360

<210> 853
 <211> 1071
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 853
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 gcatacggcg gttttttgac taccgctttg ttggaccgga cgggtttttc aggcaacctg 180
 aaacctgccg ctactttgat ggcggtgttg ttgcttggtg cggctgtttt attgccgttt 240
 ttaccgcaac ttgccgcatt tttcgtcgcc gcctattggc tgggtgttgct gctgttctgc 300
 gcctggctga tttggctcga ccgcaacacc gacaacttcg ctctgttgat gttacttgcc 360
 gcattttaccg tttttcagac ggcctatgcc gtcagcggcg atttgaactt actgcgcgcg 420
 caagtgcatt tgaatatggc ggcggtcatg ttcgtatccg tccgcgtcag cgtccttttg 480
 ggcacggaaa ccctgaaaga atgccgtctg aaagaccccg tattcatccc caacgttatc 540
 tataaaaaca tcgccatcac cctgctgctg cacgcgcgcg ccgaactttg gctgcccgcg 600
 caaacgcgcg gttttactgc gcttgccgtc ggcttcatcc tgctcgccaa gctgcgcgaa 660
 ctgcaccatc acgaactctt acgcaaacac tacgtccgca cttattacct gctccagctc 720
 tttgccgcgcg cagggttatct gtggacaggc gcggcgaaac tgcaaaacct gcccgcctcc 780
 gcgcccctgc acctgattac cctcggcggc atgacgggtg gcgtgatgat ggtgtggctg 840
 actgccggac tgtggcacag cggctttacc aaactcgact acccgaaact ctgccgcgac 900
 gccgtctcca tccttttcgc ctccgcgctt tcgcgcgctg ttttaatgaa cgtgaatccg 960
 atattcttca tcaccgttcc cgagattctg accgcgcgcg tgttcatgct ttacctgctg 1020
 acgttcgtac cgatttttcg agcgaacgcg tttacagacg atccggaata a 1071

<210> 854
 <211> 356
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 854
 Met Arg Pro Phe Phe Val Gly Ala Ala Val Leu Ala Ile Leu Gly Ala
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 Leu Val Phe Phe Ile Asn Pro Gly Ala Ile Ile Leu His Arg Gln Ile
 20 25 30
 Phe Leu Glu Leu Met Leu Pro Ala Ala Tyr Gly Gly Phe Leu Thr Thr
 35 40 45
 Ala Leu Leu Asp Arg Thr Gly Phe Ser Gly Asn Leu Lys Pro Ala Ala
 50 55 60
 Thr Leu Met Ala Val Leu Leu Val Ala Ala Val Leu Leu Pro Phe
 65 70 75 80
 Leu Pro Gln Leu Ala Ala Phe Phe Val Ala Ala Tyr Trp Leu Val Leu
 85 90 95
 Leu Leu Phe Cys Ala Trp Leu Ile Trp Leu Asp Arg Asn Thr Asp Asn

100	105	110
Phe Ala Leu Leu Met Leu Leu Ala Ala Phe Thr Val Phe Gln Thr Ala 115 120 125		
Tyr Ala Val Ser Gly Asp Leu Asn Leu Leu Arg Ala Gln Val His Leu 130 135 140		
Asn Met Ala Ala Val Met Phe Val Ser Val Arg Val Ser Val Leu Leu 145 150 155 160		
Gly Thr Glu Thr Leu Lys Glu Cys Arg Leu Lys Asp Pro Val Phe Ile 165 170 175		
Pro Asn Val Ile Tyr Lys Asn Ile Ala Ile Thr Leu Leu Leu His Ala 180 185 190		
Ala Ala Glu Leu Trp Leu Pro Ala Gln Thr Ala Gly Phe Thr Ala Leu 195 200 205		
Ala Val Gly Phe Ile Leu Leu Ala Lys Leu Arg Glu Leu His His His 210 215 220		
Glu Leu Leu Arg Lys His Tyr Val Arg Thr Tyr Tyr Leu Leu Gln Leu 225 230 235 240		
Phe Ala Ala Ala Gly Tyr Leu Trp Thr Gly Ala Ala Lys Leu Gln Asn 245 250 255		
Leu Pro Ala Ser Ala Pro Leu His Leu Ile Thr Leu Gly Gly Met Thr 260 265 270		
Gly Gly Val Met Met Val Trp Leu Thr Ala Gly Leu Trp His Ser Gly 275 280 285		
Phe Thr Lys Leu Asp Tyr Pro Lys Leu Cys Arg Ile Ala Val Ser Ile 290 295 300		
Leu Phe Ala Ser Ala Val Ser Arg Ala Val Leu Met Asn Val Asn Pro 305 310 315 320		
Ile Phe Phe Ile Thr Val Pro Glu Ile Leu Thr Ala Ala Val Phe Met 325 330 335		
Leu Tyr Leu Leu Thr Phe Val Pro Ile Phe Arg Ala Asn Ala Phe Thr 340 345 350		
Asp Asp Pro Glu 355		

<210> 855
 <211> 362
 <212> DNA
 <213> Neisseria meningitidis

 <400> 855

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aaaccggctg	ccatcgattt	ttgggatatt	ggcggcgaga	gtccgccgtc	tttaggggac	180
tacgagatac	cgctttcaga	cggcaatagt	tccgtcaggg	caaacgaata	tgaatccgca	240
caacaatctt	acttttacag	gaaaataggg	aagtttgaag	ctgcgggctg	gattggcgta	300
cgcgtgacgg	caaacctttg	attgagacgt	tcaaacaggg	aggatttgac	tgcttggaag	360
ag						362

<210> 856
 <211> 121
 <212> PRT
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature
 <222> (94)..(94)
 <223> Xaa= any amino acid

<400> 856
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 1 5 10 15
 Phe Thr Val Ala Gly Cys Arg Leu Ala Gly Trp Tyr Glu Cys Ser Ser
 20 25 30
 Leu Thr Gly Trp Cys Lys Pro Arg Lys Pro Ala Ala Ile Asp Phe Trp
 35 40 45
 Asp Ile Gly Gly Glu Ser Pro Pro Ser Leu Gly Asp Tyr Glu Ile Pro
 50 55 60
 Leu Ser Asp Gly Asn Ser Ser Val Arg Ala Asn Glu Tyr Glu Ser Ala
 65 70 75 80
 Gln Gln Ser Tyr Phe Tyr Arg Lys Ile Gly Lys Phe Glu Xaa Cys Gly
 85 90 95
 Leu Asp Trp Arg Thr Arg Asp Gly Lys Pro Leu Ile Glu Thr Phe Lys
 100 105 110
 Gln Gly Gly Phe Asp Cys Leu Glu Lys
 115 120

<210> 857
 <211> 408
 <212> DNA
 <213> *Neisseria meningitidis*

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ggctgccggc	tggcggggtg	gtatgagtgt	tcgtccctca	ccggctgggtg	taagccgaga	120
aaaccggctg	ccatcgattt	ttgggatatt	ggcggcgaga	gtccgccgtc	tttaggggac	180
tacgagatac	cgctttcaga	cggcaatcgt	tccgtcaggg	caaacgaata	tgaatccgca	240
caacaatctt	acttttacag	gaaaataggg	aagtttgaag	cctgcgggct	ggattggcgt	300
acgcgtgacg	gcaaaccttt	gattgagacg	ttcaaacagg	gaggatttga	ctgcttgga	360

aagcaggggt tgcggcgcaa cggctctgtcc gagcgcgtcc gatggtaa

408

<210> 858
 <211> 135
 <212> PRT
 <213> Neisseria meningitidis

<400> 858
 Met Glu Ile Arg Ala Ile Lys Tyr Thr Ala Met Ala Ala Leu Leu Ala
 1 5 10 15
 Phe Thr Val Ala Gly Cys Arg Leu Ala Gly Trp Tyr Glu Cys Ser Ser
 20 25 30
 Leu Thr Gly Trp Cys Lys Pro Arg Lys Pro Ala Ala Ile Asp Phe Trp
 35 40 45
 Asp Ile Gly Gly Glu Ser Pro Pro Ser Leu Gly Asp Tyr Glu Ile Pro
 50 55 60
 Leu Ser Asp Gly Asn Arg Ser Val Arg Ala Asn Glu Tyr Glu Ser Ala
 65 70 75 80
 Gln Gln Ser Tyr Phe Tyr Arg Lys Ile Gly Lys Phe Glu Ala Cys Gly
 85 90 95
 Leu Asp Trp Arg Thr Arg Asp Gly Lys Pro Leu Ile Glu Thr Phe Lys
 100 105 110
 Gln Gly Gly Phe Asp Cys Leu Glu Lys Gln Gly Leu Arg Arg Asn Gly
 115 120 125
 Leu Ser Glu Arg Val Arg Trp
 130 135

<210> 859
 <211> 408
 <212> DNA
 <213> Neisseria meningitidis

<400> 859
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 ggctgccggt tggcaggttg gtatgagtgt tcgtccctgt ccggctggtg taagccgaga 120
 aaacctgccg ccatcgattt ttgggatatt ggcggcgaga gtcctccgtc tttagaggac 180
 tacgagatac cgctttcaga cggcaatcgt tccgtcaggg caaacgaata tgaatccgca 240
 caacaatctt acttttacag gaaaataggg aagtttgaag cctgcggggt ggattggcgt 300
 acgcgtgacg gcaaaccttt gattgagacg ttcaaacagg aaggttttga ttgtttgaaa 360
 aagcaggggt tgcggcgcaa cggctctgtcc gagcgcgtcc gatggtaa 408

<210> 860
 <211> 135
 <212> PRT
 <213> Neisseria meningitidis

<400> 860
 Met Glu Ile Arg Ala Ile Lys Tyr Thr Ala Met Ala Ala Leu Leu Ala

1 5 10 15
 Phe Thr Val Ala Gly Cys Arg Leu Ala Gly Trp Tyr Glu Cys Ser Ser
 20 25 30
 Leu Ser Gly Trp Cys Lys Pro Arg Lys Pro Ala Ala Ile Asp Phe Trp
 35 40 45
 Asp Ile Gly Gly Glu Ser Pro Pro Ser Leu Glu Asp Tyr Glu Ile Pro
 50 55 60
 Leu Ser Asp Gly Asn Arg Ser Val Arg Ala Asn Glu Tyr Glu Ser Ala
 65 70 75 80
 Gln Gln Ser Tyr Phe Tyr Arg Lys Ile Gly Lys Phe Glu Ala Cys Gly
 85 90 95
 Leu Asp Trp Arg Thr Arg Asp Gly Lys Pro Leu Ile Glu Thr Phe Lys
 100 105 110
 Gln Glu Gly Phe Asp Cys Leu Lys Lys Gln Gly Leu Arg Arg Asn Gly
 115 120 125
 Leu Ser Glu Arg Val Arg Trp
 130 135

<210> 861
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N = Unknown

<400> 861
 nnnnnnnnn

8

<210> 862
 <211> 135
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 862
 Met Glu Ile Arg Val Ile Lys Tyr Thr Ala Thr Ala Ala Leu Phe Ala
 1 5 10 15

Phe Thr Val Ala Gly Cys Arg Leu Ala Gly Trp Tyr Glu Cys Leu Ser
 20 25 30

Leu Ser Gly Trp Cys Lys Pro Arg Lys Pro Ala Ala Ile Asp Phe Trp
 35 40 45

Asp Ile Gly Gly Glu Ser Pro Leu Ser Leu Glu Asp Tyr Glu Ile Pro

50 55 60

Leu Ser Asp Gly Asn Arg Ser Val Arg Ala Asn Glu Tyr Glu Ser Ala

65 70 75 80

Gln Lys Ser Tyr Phe Tyr Arg Lys Ile Gly Lys Phe Glu Ala Cys Gly
85 90 95

Leu Asp Trp Arg Thr Arg Asp Gly Lys Pro Leu Val Glu Arg Phe Lys
100 105 110

Gln Glu Gly Phe Asp Cys Leu Glu Lys Gln Gly Leu Arg Arg Asn Gly
115 120 125

Leu Ser Glu Arg Val Arg Trp
130 135

<210> 863
<211> 408
<212> DNA
<213> Neisseria gonorrhoeae

<400> 863
atggaaattc gggtataaaa atatacggca acggctgcgt tgtttgcatt tacggttgca 60
ggctgccggc tggcggggtg gtatgagtgt tcgtccttgt ccggctggtg taagccgaga 120
aaacctgccg ccacgattt ttgggatatt ggcggcgaga gtccgctgtc tttagaggac 180
tacgagatac cgctttcaga cggcaatcgt tccgtcaggg caaacgaata tgaatccgcg 240
caaaaatctt acttttatag gaaaataggg aagtttgaag cctgcgggtt ggattggcgt 300
acgcgtgacg gcaaaccctt ggttgagagg ttcaaacagg aaggtttcga ctgtttgaa 360
aagcaggggt tgcggcgcaa cggcctgtcc gagcgcgtcc gatggtaa 408

<210> 864
<211> 135
<212> PRT
<213> Neisseria gonorrhoeae

<400> 864
Met Glu Ile Arg Val Ile Lys Tyr Thr Ala Thr Ala Ala Leu Phe Ala
1 5 10 15
Phe Thr Val Ala Gly Cys Arg Leu Ala Gly Trp Tyr Glu Cys Ser Ser
20 25 30
Leu Ser Gly Trp Cys Lys Pro Arg Lys Pro Ala Ala Ile Asp Phe Trp
35 40 45
Asp Ile Gly Gly Glu Ser Pro Leu Ser Leu Glu Asp Tyr Glu Ile Pro
50 55 60
Leu Ser Asp Gly Asn Arg Ser Val Arg Ala Asn Glu Tyr Glu Ser Ala
65 70 75 80
Gln Lys Ser Tyr Phe Tyr Arg Lys Ile Gly Lys Phe Glu Ala Cys Gly
85 90 95

Leu Asp Trp Arg Thr Arg Asp Gly Lys Pro Leu Val Glu Arg Phe Lys
 100 105 110

Gln Glu Gly Phe Asp Cys Leu Glu Lys Gln Gly Leu Arg Arg Asn Gly

115

120

125

Leu Ser Glu Arg Val Arg Trp
 130 135

<210> 865
 <211> 776
 <212> DNA
 <213> Neisseria meningitidis

<400> 865
 atgaaacaca tccatattat cggatatcggc ggcacgttta tgggcgggct tgccgccatt 60
 gccaaagaag cgggggtttga agtcagcggg tgcgacgcga agatgtatcc gccgatgagc 120
 acccagctcg aagccttggg tatagacgtg tatgaaggct tcgatgccgc tcagttggac 180
 gaatttaaag ccgacgttta cgttatcggc aatgtcgcca agcgcgggat ggatgtgggt 240
 gaagcgattt tgaacctcgg cctgccttat atttcgggcc cgcaatggct gtcggaaaac 300
 gtgctgcacc atcattgggt actcgggtgtg gcggggacgc acggcaaaac gaccaccgcc 360
 tccatgctcg catgggtctt ggaatatgcc ggcctcgcgc cgggcttcct tattggcggc 420
 gtaccggaaa atttcggcgt ttccgcccgc ctgccgcaaa cgccgcgcca agaccggaac 480
 agccaatcgc cgtttttcgt catcgaagcc gacgaatacg acaccgcctt tttcgacaaa 540
 cgtttctaat tcgtgcatta ccgtccgcgt accgccgtgt tgaacaatct ggaattcgac 600
 cagcccgaca tctttgccga cttgggcgcg atacagaccc agttccacta cctcgtgcgt 660
 accgtgccgt ctgaaggctt aatcgtctgc aacggacggc agcaaagcct gcaagatact 720
 ttggacaaag gctgctggac gccggtggaa aaattcggca cggaacacgg ctggca 776

<210> 866
 <211> 259
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (142)..(142)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (183)..(183)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (225)..(225)
 <223> Xaa= any amino acid

<400> 866
 Met Lys His Ile His Ile Ile Gly Ile Gly Gly Thr Phe Met Gly Gly
 1 5 10 15

Leu Ala Ala Ile Ala Lys Glu Ala Gly Phe Glu Val Ser Gly Cys Asp
 20 25 30

Ala Lys Met Tyr Pro Pro Met Ser Thr Gln Leu Glu Ala Leu Gly Ile
 35 40 45

Asp Val Tyr Glu Gly Phe Asp Ala Ala Gln Leu Asp Glu Phe Lys Ala

50

55

60

Asp Val Tyr Val Ile Gly Asn Val Ala Lys Arg Gly Met Asp Val Val
 65 70 75 80

Glu Ala Ile Leu Asn Leu Gly Leu Pro Tyr Ile Ser Gly Pro Gln Trp
 85 90 95

Leu Ser Glu Asn Val Leu His His His Trp Val Leu Gly Val Ala Gly
 100 105 110

Thr His Gly Lys Thr Thr Thr Ala Ser Met Leu Ala Trp Val Leu Glu
 115 120 125

Tyr Ala Gly Leu Ala Pro Gly Phe Leu Ile Gly Gly Val Xaa Gly Lys
 130 135 140

Phe Arg Arg Phe Arg Pro Pro Ala Ala Asn Ala Ala Pro Arg Pro Glu
 145 150 155 160

Gln Pro Ile Ala Val Phe Arg His Arg Ser Arg Arg Ile Arg His Arg
 165 170 175

Leu Phe Arg Gln Thr Phe Xaa Ile Arg Ala Leu Pro Ser Ala Tyr Arg
 180 185 190

Arg Val Glu Gln Ser Gly Ile Arg Pro Arg Arg His Leu Cys Arg Leu
 195 200 205

Gly Arg Asp Thr Asp Pro Val Pro Leu Pro Arg Ala Tyr Arg Ala Val
 210 215 220

Xaa Arg Leu Asn Arg Leu Gln Arg Thr Ala Ala Lys Pro Ala Arg Tyr
 225 230 235 240

Phe Gly Gln Arg Leu Leu Asp Ala Gly Gly Lys Ile Arg His Gly Thr
 245 250 255

Arg Leu Ala

<210> 867

<211> 1377

<212> DNA

<213> Neisseria meningitidis

<400> 867

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 gccaaagaag cggggtttga agtcagcggg tgcgacgcga agatgtatcc gccgatgagc 120
 acccagctcg aagccttggg tatagacgtg tatgaaggct tcgatgccgc tcagttggac 180

gaattttaaag	ccgacgttta	cgttatcggc	aatgtcgcca	agcgcgggat	ggatgtggtt	240
gaagcgattt	tgaacctcgg	cctgccttat	atttcgggcc	cgcaatggct	gtcggaaaac	300
gtgctgcacc	atcattgggt	actcgggtgtg	gcggggacgc	acggcaaaac	gaccaccgcc	360
tccatgctcg	catgggtctt	ggaatatgcc	ggcctcgcgc	cgggcttctt	tattggcggc	420
gtaccggaaa	atttcggcgt	ttccgcccgc	ctgccgcaaa	cgccgcgcca	agaccggaac	480
agccaatcgc	cgtttttcgt	catcgaagcc	gacgaatacg	acaccgcctt	tttcgacaaa	540

cgttctaaat	tcgtgcatta	ccgtccgcgt	accgccgtgt	tgaacaatct	ggaattcgac	600
cacgccgaca	tctttgccga	cttgggcgcg	atacagaccc	agttccacta	cctcgtgcgt	660
accgtgccgt	ctgaaggctt	aatcgtctgc	aacggacggc	agcaaagcct	gcaagatact	720
ttggacaaag	gctgctggac	gccggtggaa	aaattcggca	cggaacacgg	ctggcaggcc	780
ggcgaagcca	atgccgacgg	ctcgttcgac	gtggtgctcg	acggcaaaac	cgccggacgc	840
gtcaaattggg	atttgatggg	caggcacaac	cgcatagaacg	cgctcgccgt	cattgccgcc	900
gcgcgtcatg	tcggtgtcga	tattcagacc	gcctgcgaag	ccttgggcgc	gtttaaaaac	960
gtcaaacgcc	ggatggaaat	caaaggcacg	gcaaacggca	tcaccgttta	cgacgacttc	1020
gcccaccacc	cgaccgccat	cgaaccacag	attcaagggt	tgcgccaacg	cgtcggcggc	1080
gcgcgcctcc	tcgccgtcct	cgaaccgcgt	tccaacacga	tgaagctggg	cacgatgaag	1140
tccgcctcgc	ctgtaagcct	caaagaagcc	gaccaagtgt	tctgctacgc	cggcggcgtg	1200
gactgggacg	tcgccgaagc	cctcgcgcct	ttgggcggca	ggctgaacgt	cggcaaagac	1260
ttcgatgcct	tcgttgccga	aatcgtgaaa	aacgccgaag	taggcgacca	tattttggtg	1320
atgagcaacg	gcggtttcgg	cggaatacac	ggaaagctgc	tggaagcttt	gagatag	1377

<210> 868
 <211> 458
 <212> PRT
 <213> Neisseria meningitidis

<400> 868
 Met Lys His Ile His Ile Ile Gly Ile Gly Gly Thr Phe Met Gly Gly
 1 5 10 15
 Leu Ala Ala Ile Ala Lys Glu Ala Gly Phe Glu Val Ser Gly Cys Asp
 20 25 30
 Ala Lys Met Tyr Pro Pro Met Ser Thr Gln Leu Glu Ala Leu Gly Ile
 35 40 45
 Asp Val Tyr Glu Gly Phe Asp Ala Ala Gln Leu Asp Glu Phe Lys Ala
 50 55 60
 Asp Val Tyr Val Ile Gly Asn Val Ala Lys Arg Gly Met Asp Val Val
 65 70 75 80
 Glu Ala Ile Leu Asn Leu Gly Leu Pro Tyr Ile Ser Gly Pro Gln Trp
 85 90 95
 Leu Ser Glu Asn Val Leu His His His Trp Val Leu Gly Val Ala Gly
 100 105 110
 Thr His Gly Lys Thr Thr Thr Ala Ser Met Leu Ala Trp Val Leu Glu
 115 120 125
 Tyr Ala Gly Leu Ala Pro Gly Phe Leu Ile Gly Gly Val Pro Glu Asn
 130 135 140
 Phe Gly Val Ser Ala Arg Leu Pro Gln Thr Pro Arg Gln Asp Pro Asn

145		150		155		160
Ser Gln Ser Pro Phe Phe Val Ile Glu Ala Asp Glu Tyr Asp Thr Ala						
		165		170		175
Phe Phe Asp Lys Arg Ser Lys Phe Val His Tyr Arg Pro Arg Thr Ala						
		180		185		190
Val Leu Asn Asn Leu Glu Phe Asp His Ala Asp Ile Phe Ala Asp Leu						
		195		200		205
Gly Ala Ile Gln Thr Gln Phe His Tyr Leu Val Arg Thr Val Pro Ser						
		210		215		220
Glu Gly Leu Ile Val Cys Asn Gly Arg Gln Gln Ser Leu Gln Asp Thr						
		225		230		235
Leu Asp Lys Gly Cys Trp Thr Pro Val Glu Lys Phe Gly Thr Glu His						
		245		250		255
Gly Trp Gln Ala Gly Glu Ala Asn Ala Asp Gly Ser Phe Asp Val Leu						
		260		265		270
Leu Asp Gly Lys Thr Ala Gly Arg Val Lys Trp Asp Leu Met Gly Arg						
		275		280		285
His Asn Arg Met Asn Ala Leu Ala Val Ile Ala Ala Ala Arg His Val						
		290		295		300
Gly Val Asp Ile Gln Thr Ala Cys Glu Ala Leu Gly Ala Phe Lys Asn						
		305		310		315
Val Lys Arg Arg Met Glu Ile Lys Gly Thr Ala Asn Gly Ile Thr Val						
		325		330		335
Tyr Asp Asp Phe Ala His His Pro Thr Ala Ile Glu Thr Thr Ile Gln						
		340		345		350
Gly Leu Arg Gln Arg Val Gly Gly Ala Arg Ile Leu Ala Val Leu Glu						
		355		360		365
Pro Arg Ser Asn Thr Met Lys Leu Gly Thr Met Lys Ser Ala Leu Pro						
		370		375		380
Val Ser Leu Lys Glu Ala Asp Gln Val Phe Cys Tyr Ala Gly Gly Val						
		385		390		395
Asp Trp Asp Val Ala Glu Ala Leu Ala Pro Leu Gly Gly Arg Leu Asn						
		405		410		415
Val Gly Lys Asp Phe Asp Ala Phe Val Ala Glu Ile Val Lys Asn Ala						
		420		425		430
Glu Val Gly Asp His Ile Leu Val Met Ser Asn Gly Gly Phe Gly Gly						
		435		440		445

Ile His Gly Lys Leu Leu Glu Ala Leu Arg
 450 455

<210> 869
 <211> 1377
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (82)..(82)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (301)..(301)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (319)..(320)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (335)..(335)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (409)..(409)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (888)..(888)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (918)..(918)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (1185)..(1185)
 <223> N= Unknown

<400> 869
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 gccaaagaag cagggtttga antcagcggg tgcgatgcga agatgtatcc gccgatgagc 120
 acccagctcg aagccttggg cataggcgtg tatgaaggct tcgacaccgc gcagttggac 180
 gaatttaaag ccgacgttta cgttatcggc aatgtcgcca agcgcgggat ggatgtgggt 240
 gaagcgattt tgaaccgtgg gctgccttat atttccggcc cgcaatggct ggctgaaaac 300
 ntgctgcacc atcattggnn actcggcgtg gcgngacgc acggcaaaac gaccaccgcg 360

tctatgctcg	cgtggggtttt	ggaatatgcc	ggactcgcac	cggggttcnt	tatcggcggc	420
gtaccggaaa	acttcagcgt	ttccgcccgc	ctgccgcaaa	cgccgcgcca	agacccgaac	480
agccaatcgc	cgtttttcgt	cattgaagcc	gacgaatacg	acaccgcgtt	tttcgacaaa	540
cgtccaaat	tctgtcatta	ccgtccgcgt	accgccgtgt	tgaacaatct	ggaattcgac	600
cacgccgaca	tcttcgccga	tttgggcgcg	atacagaccc	agttccacca	cctcgtgcgt	660
accgtgccgt	ctgaaggcct	catcgtctgc	aacggacggc	agcaaagcct	gcaagacact	720
ttggacaaa	gctgctggac	gccggtggaa	aaattcggca	cggaâcacgg	ctggcaggcc	780
ggcgaagcca	atgccgatgg	ctcgttcgac	gtgttgcttg	acggcaaaaa	agccggacac	840
gtcgttgga	gtttgatggg	cggacacaac	cgcatgaacg	cgctcgcngt	catcgccgcc	900

gcgcgtcatg	ccggagtnga	cattcagacg	gcctgcgaag	ccttgagcac	gtttaaaaaac	960
gtcaaacgcc	gcatggaaat	caaaggcacg	gcaaacggta	tcaccgttta	cgacgacttc	1020
gccaccatc	cgaccgctat	cgaaccacg	attcaagggt	tgccgcagcg	cgtcggcggc	1080
gcgcgcatcc	tcgccgtcct	cgaaccgcgt	tccaatacga	tgaagctggg	tacgatgaaa	1140
gccgccctgc	ccgcaagcct	caaagaagcc	gaccaagtgt	tctgntacgc	cggcggcgcg	1200
gactgggacg	ttgccgaagc	cctcgcgcct	ttgggcggca	ggctgcacgt	cggcaaagac	1260
ttcgatgcct	tcgttgccga	aatcgtgaaa	aacgccgaag	caggcgacca	tattttggtg	1320
atgagcaacg	gcggtttcgg	cgggaatacac	accaaactgc	tggaacgcttt	gagatag	1377

<210> 870
 <211> 458
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (28)..(28)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (101)..(101)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (107)..(107)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (112)..(112)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (137)..(137)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (395)..(395)
 <223> Xaa= any amino acid

<400> 870
 Met Lys His Ile His Ile Ile Gly Ile Gly Gly Thr Phe Met Gly Gly

1	5	10	15
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20	25	30	
Ala Lys Met Tyr Pro Pro Met	Ser Thr Gln Leu Glu Ala Leu Gly	Ile	
35	40	45	
Gly Val Tyr Glu Gly Phe Asp	Thr Ala Gln Leu Asp Glu Phe Lys Ala		
50	55	60	
Asp Val Tyr Val Ile Gly Asn Val Ala Lys Arg Gly Met Asp Val Val			
65	70	75	80
Glu Ala Ile Leu Asn Arg Gly Leu Pro Tyr Ile Ser Gly Pro Gln Trp			
85	90	95	
Leu Ala Glu Asn Xaa Leu His His His Trp Xaa Leu Gly Val Ala Xaa			
100	105	110	
Thr His Gly Lys Thr Thr Thr Ala Ser Met Leu Ala Trp Val Leu Glu			
115	120	125	
Tyr Ala Gly Leu Ala Pro Gly Phe Xaa Ile Gly Gly Val Pro Glu Asn			
130	135	140	
Phe Ser Val Ser Ala Arg Leu Pro Gln Thr Pro Arg Gln Asp Pro Asn			
145	150	155	160
Ser Gln Ser Pro Phe Phe Val Ile Glu Ala Asp Glu Tyr Asp Thr Ala			
165	170	175	
Phe Phe Asp Lys Arg Ser Lys Phe Val His Tyr Arg Pro Arg Thr Ala			
180	185	190	
Val Leu Asn Asn Leu Glu Phe Asp His Ala Asp Ile Phe Ala Asp Leu			
195	200	205	
Gly Ala Ile Gln Thr Gln Phe His His Leu Val Arg Thr Val Pro Ser			
210	215	220	
Glu Gly Leu Ile Val Cys Asn Gly Arg Gln Gln Ser Leu Gln Asp Thr			
225	230	235	240
Leu Asp Lys Gly Cys Trp Thr Pro Val Glu Lys Phe Gly Thr Glu His			
245	250	255	
Gly Trp Gln Ala Gly Glu Ala Asn Ala Asp Gly Ser Phe Asp Val Leu			
260	265	270	
Leu Asp Gly Lys Lys Ala Gly His Val Ala Trp Ser Leu Met Gly Gly			
275	280	285	
His Asn Arg Met Asn Ala Leu Ala Val Ile Ala Ala Ala Arg His Ala			
290	295	300	

Gly Val Asp Ile Gln Thr Ala Cys Glu Ala Leu Ser Thr Phe Lys Asn
 305 310 315 320

Val Lys Arg Arg Met Glu Ile Lys Gly Thr Ala Asn Gly Ile Thr Val
 325 330 335

Tyr Asp Asp Phe Ala His His Pro Thr Ala Ile Glu Thr Thr Ile Gln
 340 345 350

Gly Leu Arg Gln Arg Val Gly Gly Ala Arg Ile Leu Ala Val Leu Glu
 355 360 365

Pro Arg Ser Asn Thr Met Lys Leu Gly Thr Met Lys Ala Ala Leu Pro
 370 375 380

Ala Ser Leu Lys Glu Ala Asp Gln Val Phe Xaa Tyr Ala Gly Gly Ala
 385 390 395 400

Asp Trp Asp Val Ala Glu Ala Leu Ala Pro Leu Gly Gly Arg Leu His
 405 410 415

Val Gly Lys Asp Phe Asp Ala Phe Val Ala Glu Ile Val Lys Asn Ala
 420 425 430

Glu Ala Gly Asp His Ile Leu Val Met Ser Asn Gly Gly Phe Gly Gly
 435 440 445

Ile His Thr Lys Leu Leu Asp Ala Leu Arg
 450 455

<210> 871
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N = Unknown

<400> 871
 nnnnnnnn

8

<210> 872
 <211> 261
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 872
 Met Lys His Ile His Ile Ile Gly Ile Gly Gly Thr Phe Met Gly Gly
 1 5 10 15

Ile Ala Ala Ile Ala Lys Glu Ala Gly Phe Lys Val Ser Gly Cys Asp
 20 25 30

Ala Lys Met Tyr Pro Pro Met Ser Thr Gln Leu Glu Ala Leu Gly Ile

35 40 45
 Gly Val His Glu Gly Phe Asp Ala Ala Gln Leu Glu Glu Phe Gln Ala
 50 55 60
 Asp Ile Tyr Val Ile Gly Asn Val Ala Arg Arg Gly Met Asp Val Val
 65 70 75 80
 Glu Ala Ile Leu Asn Arg Gly Leu Pro Tyr Ile Ser Gly Pro Gln Trp
 85 90 95
 Leu Ala Glu Asn Val Leu His His His Trp Val Leu Gly Val Ala Gly
 100 105 110
 Thr His Gly Lys Thr Thr Thr Ala Ser Met Leu Ala Trp Val Leu Glu
 115 120 125
 Tyr Ala Gly Leu Ala Pro Gly Phe Leu Ile Gly Gly Val Pro Gly Lys
 130 135 140
 Phe Arg Arg Phe Arg Pro Pro Thr Ala Asn Ala Ala Ser Arg Pro Glu
 145 150 155 160
 Gln Gln Ile Ala Val Phe Arg His Arg Ser Arg Arg Ile Arg His Arg
 165 170 175
 Leu Phe Arg Gln Thr Leu Gln Ile Arg Ala Leu Ser Pro Ala Tyr Arg
 180 185 190
 Arg Val Glu Gln Ser Gly Ile Arg Pro Arg Arg His Leu Arg Arg Leu
 195 200 205
 Gly Arg Asp Thr Asp Pro Val Pro Pro Pro Arg Ala His Arg Thr Ile
 210 215 220
 Arg Arg Pro His Arg Leu Gln Arg Thr Ala Ala Lys Pro Ala Arg Tyr
 225 230 235 240
 Phe Gly Gln Arg Leu Leu Asp Ala Gly Gly Lys Ile Arg His Arg Thr
 245 250 255
 Arg Leu Ala Asp Trp
 260

<210> 873
 <211> 1377
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 873
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 acccagctcg aagccttggg cataggcgta cacgaaggct tcgatgccgc gcagttggaa 180
 gaatttcaag ccgatattta cgtcatcggc aatgtcgcca ggcgcgggat ggatgtggtc 240
 gaggcgattt tgaaccgtgg gctgccttat atttcggcc cgcaatggct ggctgaaaac 300

gtgctgcacc	atcattgggt	actcggcgtg	gcagggacgc	acggcaaaac	gaccaccgcg	360
tccatgctcg	cctgggtctt	ggaatatgcc	ggactcgcgc	cgggttctct	catcggcggt	420
gtaccggaaa	atttcggcgt	ttccgcccgc	ctaccgcaaa	cgcgcgctca	agacccgaac	480
agcaaatacg	cgtttttcgt	catcgaagcc	gacgaatacg	acaccgcctt	tttcgacaaa	540
cgtccaaat	tctgtcatta	tgcgccgcgt	accgcgcgtg	tgaacaatct	ggaattcgac	600
cacgccgaca	tcttcgccga	cttgggcgcg	atacagaccc	agttccacca	cctcgtgcgc	660
accgtaccat	ccgaaggcct	catcgtctgc	aacggacagc	agcaaagcct	gcaagatact	720
ttggacaaa	gctgctggac	gccggtggaa	aaattcggca	ccggacacgg	ctggcagatt	780
ggtgaagtca	atgccgacgg	ctcgttcgac	gtattgcttg	acggcaaaaa	agccggacac	840
gtcgcattgg	atttgatggg	cggacacaa	cgcatagaac	cgcctcgcct	catcgtgcc	900
gcacgccatg	ccggagtcga	tgttcagacg	gcctgcgaag	ccttgggtgc	gtttaaaaac	960
gtcaaacgcc	gcatggaaat	caaaggcaac	gcaaacggca	tcaccgttta	cgacgatttc	1020
gcccaccacc	cgaccgccat	cgaaccacg	attcaaggtt	tgcgccaacg	tgtcggcggc	1080

gcgcgcatcc	tgcgcgtcct	cgagccgcgt	tccaacacca	tgaaactcgg	cacgatgaag	1140
tccgcctcgc	ccgaagcct	caaagaagcc	gaccaagtgt	tctgctacgc	cggcggcgcg	1200
gactgggacg	ttgccgaagc	cctcgcgcct	ttgggtgcga	ggctgcgcgt	cggtaaagat	1260
ttcgatacct	tgtttgccga	aattgtgaaa	aacgcccga	ccggcgacca	tattttggtg	1320
atgagcaacg	gcggtttcgg	cgggaatacac	accaaactgc	tggacgcttt	gagatag	1377

<210> 874
 <211> 458
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 874
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 Ile Ala Ala Ile Ala Lys Glu Ala Gly Phe Lys Val Ser Gly Cys Asp
 20 25 30
 Ala Lys Met Tyr Pro Pro Met Ser Thr Gln Leu Glu Ala Leu Gly Ile
 35 40 45
 Gly Val His Glu Gly Phe Asp Ala Ala Gln Leu Glu Glu Phe Gln Ala
 50 55 60
 Asp Ile Tyr Val Ile Gly Asn Val Ala Arg Arg Gly Met Asp Val Val
 65 70 75 80
 Glu Ala Ile Leu Asn Arg Gly Leu Pro Tyr Ile Ser Gly Pro Gln Trp
 85 90 95
 Leu Ala Glu Asn Val Leu His His His Trp Val Leu Gly Val Ala Gly
 100 105 110
 Thr His Gly Lys Thr Thr Thr Ala Ser Met Leu Ala Trp Val Leu Glu
 115 120 125
 Tyr Ala Gly Leu Ala Pro Gly Phe Leu Ile Gly Gly Val Pro Glu Asn
 130 135 140
 Phe Gly Val Ser Ala Arg Leu Pro Gln Thr Pro Arg Gln Asp Pro Asn
 145 150 155 160

Ser Lys Ser Pro Phe Phe Val Ile Glu Ala Asp Glu Tyr Asp Thr Ala
 165 170 175
 Phe Phe Asp Lys Arg Ser Lys Phe Val His Tyr Arg Pro Arg Thr Ala
 180 185 190
 Val Leu Asn Asn Leu Glu Phe Asp His Ala Asp Ile Phe Ala Asp Leu
 195 200 205
 Gly Ala Ile Gln Thr Gln Phe His His Leu Val Arg Thr Val Pro Ser
 210 215 220
 Glu Gly Leu Ile Val Cys Asn Gly Gln Gln Gln Ser Leu Gln Asp Thr
 225 230 235 240
 Leu Asp Lys Gly Cys Trp Thr Pro Val Glu Lys Phe Gly Thr Gly His
 245 250 255
 Gly Trp Gln Ile Gly Glu Val Asn Ala Asp Gly Ser Phe Asp Val Leu
 260 265 270
 Leu Asp Gly Lys Lys Ala Gly His Val Ala Trp Asp Leu Met Gly Gly
 275 280 285
 His Asn Arg Met Asn Ala Leu Ala Val Ile Ala Ala Ala Arg His Ala
 290 295 300
 Gly Val Asp Val Gln Thr Ala Cys Glu Ala Leu Gly Ala Phe Lys Asn
 305 310 315 320
 Val Lys Arg Arg Met Glu Ile Lys Gly Thr Ala Asn Gly Ile Thr Val
 325 330 335
 Tyr Asp Asp Phe Ala His His Pro Thr Ala Ile Glu Thr Thr Ile Gln
 340 345 350
 Gly Leu Arg Gln Arg Val Gly Gly Ala Arg Ile Leu Ala Val Leu Glu
 355 360 365
 Pro Arg Ser Asn Thr Met Lys Leu Gly Thr Met Lys Ser Ala Leu Pro
 370 375 380
 Ala Ser Leu Lys Glu Ala Asp Gln Val Phe Cys Tyr Ala Gly Gly Ala
 385 390 395 400
 Asp Trp Asp Val Ala Glu Ala Leu Ala Pro Leu Gly Cys Arg Leu Arg
 405 410 415
 Val Gly Lys Asp Phe Asp Thr Phe Val Ala Glu Ile Val Lys Asn Ala
 420 425 430
 Arg Thr Gly Asp His Ile Leu Val Met Ser Asn Gly Gly Phe Gly Gly
 435 440 445
 Ile His Thr Lys Leu Leu Asp Ala Leu Arg
 450 455

<210> 875
 <211> 1181
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (511)..(534)
 <223> N= Unknown

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 aaaaagcgcg ccaacaacca ttcggtcagc attagtgcgg acttcggcga ttatttcacg 180

ccgttcgcca gctatttcgcg cacacaccgt atgcccaca tccaagaaat gtatttttcc 240
 caaatcggcg actccggcgt tcacaccgcc ttaaaaccag agcgcgcaaa cacttggcaa 300
 tttggcttcr atacctataa aaaaggattg ttaaaacaag atgatacatt aggattaaaa 360
 ctggctcggt accgcagccg catcgacaac tacatccaca acgtttacgg gaaatggtgg 420
 gatttgaacg gggatattcc gagctgggtc agcagcaccg ggcttgccta caccatccaa 480
 catcgcratt tcawagacaa agtgcacaa nnnnnnnnnn nnnnnnnnnn nnnntacgat 540
 tatgggcgtt ttttcaccaa cttttcttac gcctatcaaa aaagcacgca accgaccaac 600
 ttcagcgatg cgagcgaatc gcccaacaat gcgtccaaag aagaccaact caaacaaggc 660
 tatgggttga gcagggtttc cgccctgccg cgagattacg gacgtttgga agtcggtacg 720
 cgctgggttg gcaacaaact gactttgggc ggcgcgatgc gctatttcgg caagagcatc 780
 cgcgcgacgg ctgaagaacg ctatatcgac ggcaccaacg ggggaaatac cagcaatttc 840
 cggcaactgg gcaagcggtc catcaaaaca accgaaactc ttgcccggca gcctttgatt 900
 ttwgatttta acgccgctta cgagccgaag aaaaacctta ttttccgcgc cgaagtcaaa 960
 aatctgttcg acaggcggtt tatcgatccg ctcgatgcgg gcaatgatgc ggcaacgagc 1020
 gttattacag ctctgttcgac ccgaaagaca aggacrraga cgtaacgtgt aatgctgata 1080
 aaacgttgtg caacggcaaa tacggcggca caagcaaaag cgtattgacc aattttgcac 1140
 gcggacgcac ctttttgatg acgatgagct acaagtttta a 1181

<210> 876
 <211> 393
 <212> PRT
 <213> Neisseria meningitidis

<220>
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 <222> (21)..(21)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (104)..(104)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (163)..(163)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature

<222> (165)..(165)
 <223> Xaa= any amino acid

<220>
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 <222> (171)..(178)
 <223> Xaa= any amino acid

<220>
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 <222> (301)..(301)
 <223> Xaa= any amino acid

<220>
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 <222> (339)..(339)

<223> Xaa= any amino acid

<220>
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 <222> (353)..(353)
 <223> Xaa= any amino acid

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 20 25 30
 Glu Pro Val Leu Lys Lys Tyr Gly Lys Lys Arg Ala Asn Asn His Ser
 35 40 45
 Val Ser Ile Ser Ala Asp Phe Gly Asp Tyr Phe Met Pro Phe Ala Ser
 50 55 60
 Tyr Ser Arg Thr His Arg Met Pro Asn Ile Gln Glu Met Tyr Phe Ser
 65 70 75 80
 Gln Ile Gly Asp Ser Gly Val His Thr Ala Leu Lys Pro Glu Arg Ala
 85 90 95
 Asn Thr Trp Gln Phe Gly Phe Xaa Thr Tyr Lys Lys Gly Leu Leu Lys
 100 105 110
 Gln Asp Asp Thr Leu Gly Leu Lys Leu Val Gly Tyr Arg Ser Arg Ile
 115 120 125
 Asp Asn Tyr Ile His Asn Val Tyr Gly Lys Trp Trp Asp Leu Asn Gly
 130 135 140
 Asp Ile Pro Ser Trp Val Ser Ser Thr Gly Leu Ala Tyr Thr Ile Gln
 145 150 155 160
 His Arg Xaa Phe Xaa Asp Lys Val His Gln Xaa Xaa Xaa Xaa Xaa Xaa

165										170					175				
Xaa	Xaa	Tyr	Asp	Tyr	Gly	Arg	Phe	Phe	Thr	Asn	Leu	Ser	Tyr	Ala	Tyr				
			180						185					190					
Gln	Lys	Ser	Thr	Gln	Pro	Thr	Asn	Phe	Ser	Asp	Ala	Ser	Glu	Ser	Pro				
		195					200					205							
Asn	Asn	Ala	Ser	Lys	Glu	Asp	Gln	Leu	Lys	Gln	Gly	Tyr	Gly	Leu	Ser				
	210					215					220								
Arg	Val	Ser	Ala	Leu	Pro	Arg	Asp	Tyr	Gly	Arg	Leu	Glu	Val	Gly	Thr				
225					230				235						240				
Arg	Trp	Leu	Gly	Asn	Lys	Leu	Thr	Leu	Gly	Gly	Ala	Met	Arg	Tyr	Phe				
			245						250					255					
Gly	Lys	Ser	Ile	Arg	Ala	Thr	Ala	Glu	Glu	Arg	Tyr	Ile	Asp	Gly	Thr				
			260					265					270						
Asn	Gly	Gly	Asn	Thr	Ser	Asn	Phe	Arg	Gln	Leu	Gly	Lys	Arg	Ser	Ile				
	275						280					285							
Lys	Gln	Thr	Glu	Thr	Leu	Ala	Arg	Gln	Pro	Leu	Ile	Xaa	Asp	Phe	Asn				
	290					295					300								
Ala	Ala	Tyr	Glu	Pro	Lys	Lys	Asn	Leu	Ile	Phe	Arg	Ala	Glu	Val	Lys				
305					310					315					320				
Asn	Leu	Phe	Asp	Arg	Arg	Tyr	Ile	Asp	Pro	Leu	Asp	Ala	Gly	Asn	Asp				
			325						330					335					
Ala	Ala	Xaa	Glu	Arg	Tyr	Tyr	Ser	Ser	Phe	Asp	Pro	Lys	Asp	Lys	Asp				
			340					345					350						
Xaa	Asp	Val	Thr	Cys	Asn	Ala	Asp	Lys	Thr	Leu	Cys	Asn	Gly	Lys	Tyr				
	355						360					365							
Gly	Gly	Thr	Ser	Lys	Ser	Val	Leu	Thr	Asn	Phe	Ala	Arg	Gly	Arg	Thr				
	370					375					380								
Phe	Leu	Met	Thr	Met	Ser	Tyr	Lys	Phe											
385					390														

<210> 877
 <211> 2667
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (835)..(835)
 <223> N= Unknown

<400> 877

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gaaaacctcg	acaacatcgt	acgcagcatc	cccgggtgcgt	ttacacagca	agataaaagc	180
tcgggcattg	tgtctttgaa	tatttcgggc	gacagcgggt	tcgggcgggt	caatacgaatg	240
gtggacggca	tcacgcagac	cttttattcg	acttctaccg	atgcgggcag	ggcaggcgggt	300
tcattctcaat	tcgggtgcac	tgtcgacagc	aattttattg	ccggactgga	tgtcgtcaaa	360
ggcagcttca	gcggctcggc	aggcatcaac	agccttgccg	gttcggcgaa	tctgcggact	420
ttaggcgtgg	atgacgtcgt	tcagggaat	aatacctacg	gcctgctgct	aaaaggctctg	480
accggcacca	attcaaccaa	aggtaatgcg	atggcggcga	taggtgcgcg	caaataggctg	540
gaaagcggag	catctgtcgg	tgtgctttac	gggcacagca	ggcgcagcgt	ggcgcaaaat	600
taccgcgtgg	gcggcggcgg	gcagcacatc	ggaaattttg	gcgcggaata	tttggaaacgg	660
cgcaagcagc	gatattttgt	acaagagggt	gctttgaaat	tcaattccga	cagcggaaaa	720
tgggagcggg	atttacaag	gcaacagtgg	aaatacaagc	cgtataaaaa	ttacaacaac	780
caagaactac	aaaaatacat	cgaagagcat	gacaaaagct	ggcgggaaaa	cctgncaccg	840
caatacgaca	ttaccccat	cgatccgtcc	agcctgaagc	agcagtcggc	aggcaatctg	900
tttaaattgg	aatacgacgg	cgtattcaat	aaatacacgg	cgcaatttcg	cgatttaaac	960
acaaaaatcg	gcagccgcaa	aatcatcaac	cgcaattatc	agttcaatta	cggtttgtct	1020
ttgaacccgt	ataccaacct	caatctgacc	gcagcctaca	attcgggcag	gcagaaatat	1080

ccgaaagggt	cgaagttttac	aggctggggg	cttttaagg	attttgaaac	ctacaacaac	1140
gcgaaaatcc	tcgacctcaa	caacaccgcc	accttcgggc	tgccccgcga	aaccgagttg	1200
caaaccactt	tgggcttcaa	ttatttccac	aacgaatacg	gcaaaaaccg	ctttcctgaa	1260
gaattggggc	tgtttttcga	cggtectgat	caggacaacg	ggctttattc	ctatttgggg	1320
cggtttaagg	gcgataaagg	gctgctgcc	caaaaatcaa	ccattgtcca	accggccggc	1380
agccaatatt	tcaacacgtt	ctacttcgat	gccgcgctca	aaaaagacat	ttaccgctta	1440
aactacagca	ccaataccgt	cggctaccgt	ttcggcggcg	aatatacggg	ctattacggc	1500
tcggatgacg	aatttaagcg	ggcattcggg	gaaaactcgc	cgacatacaa	gaaacattgc	1560
aaccggagct	gcgggattta	tgaacccgta	ttgaaaaaat	acggcaaaaa	gcgcgccaac	1620
aaccattcgg	tcagcattag	tgcggacttc	ggcgattatt	tcatgccgtt	cgccagctat	1680
tcgcgcacac	accgtatgcc	caacatccaa	gaaatgtatt	tttcccaaat	cggcgactcc	1740
ggcggtcaca	ccgccttaaa	accagagcgc	gcaaactctt	ggcaatttgg	cttcaatacc	1800
tataaaaaag	gattgttaaa	acaagatgat	acattaggat	taaaactggg	cggctaccgc	1860
agccgcacgc	acaactacat	ccacaacgtt	tacgggaaat	ggtgggattt	gaacggggat	1920
attccgagct	gggtcagcag	caccgggctt	gcctacacca	tccaacatcg	caatttcaaa	1980
gacaaagtgc	acaaacacgg	ttttgagttg	gagctgaatt	acgattatgg	gcgttttttc	2040
accaaccttt	cttacgccta	tcaaaaaagc	acgcaaccga	ccaacttcag	cgatgcgagc	2100
gaatcgccca	acaatgcgtc	caaagaagac	caactcaaac	aaggttatgg	gttgagcagg	2160
gtttccgccc	tgccgcgaga	ttacggacgt	ttggaagtcg	gtacgcgctg	gttgggcaac	2220
aaactgactt	tgggcggcgc	gatgcgctat	ttcggcaaga	gcacccgcgc	gacggctgaa	2280
gaacgctata	tcgacggcac	caacggggga	aataccagca	atttccggca	actgggcaag	2340
cgttccatca	aacaaaccga	aactcttgcc	cgcgcgcctt	tgatttttga	tttttacgcc	2400
gcttacgagc	cgaagaaaaa	ccttattttc	cgcgcggaag	tcaaaaatct	gttcgacagg	2460
cgttatatcg	atccgctcga	tgcgggcaat	gatgcggcaa	cgcagcggtta	ttacagctcg	2520
ttcgacccga	aagacaagga	cgaagacgta	acgtgtaatg	ctgataaaac	gttgtgcaac	2580
ggcaaatacg	gcggcacaag	caaaagcgta	ttgaccaatt	ttgcacgcgg	acgcaccttt	2640
ttgatgacga	tgagctacaa	gttttaa				2667

<210> 878
 <211> 888
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (279)..(279)
 <223> Xaa= any amino acid

<400> 878

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20 25 30

Arg Gln Asp Ile Phe Lys Ser Ser Glu Asn Leu Asp Asn Ile Val Arg
35 40 45

Ser Ile Pro Gly Ala Phe Thr Gln Gln Asp Lys Ser Ser Gly Ile Val
50 55 60

Ser Leu Asn Ile Arg Gly Asp Ser Gly Phe Gly Arg Val Asn Thr Met
65 70 75 80

Val Asp Gly Ile Thr Gln Thr Phe Tyr Ser Thr Ser Thr Asp Ala Gly
85 90 95

Arg Ala Gly Gly Ser Ser Gln Phe Gly Ala Ser Val Asp Ser Asn Phe
100 105 110

Ile Ala Gly Leu Asp Val Val Lys Gly Ser Phe Ser Gly Ser Ala Gly
115 120 125

Ile Asn Ser Leu Ala Gly Ser Ala Asn Leu Arg Thr Leu Gly Val Asp
130 135 140

Asp Val Val Gln Gly Asn Asn Thr Tyr Gly Leu Leu Leu Lys Gly Leu
145 150 155 160

Thr Gly Thr Asn Ser Thr Lys Gly Asn Ala Met Ala Ala Ile Gly Ala
165 170 175

Arg Lys Trp Leu Glu Ser Gly Ala Ser Val Gly Val Leu Tyr Gly His
180 185 190

Ser Arg Arg Ser Val Ala Gln Asn Tyr Arg Val Gly Gly Gly Gly Gln
195 200 205

His Ile Gly Asn Phe Gly Ala Glu Tyr Leu Glu Arg Arg Lys Gln Arg
210 215 220

Tyr Phe Val Gln Glu Gly Ala Leu Lys Phe Asn Ser Asp Ser Gly Lys
225 230 235 240

Trp Glu Arg Asp Leu Gln Arg Gln Gln Trp Lys Tyr Lys Pro Tyr Lys
245 250 255

Asn Tyr Asn Asn Gln Glu Leu Gln Lys Tyr Ile Glu Glu His Asp Lys
260 265 270

Ser Trp Arg Glu Asn Leu Xaa Pro Gln Tyr Asp Ile Thr Pro Ile Asp
275 280 285

Pro Ser Ser Leu Lys Gln Gln Ser Ala Gly Asn Leu Phe Lys Leu Glu
 290 295 300
 Tyr Asp Gly Val Phe Asn Lys Tyr Thr Ala Gln Phe Arg Asp Leu Asn
 305 310 315 320
 Thr Lys Ile Gly Ser Arg Lys Ile Ile Asn Arg Asn Tyr Gln Phe Asn
 325 330 335
 Tyr Gly Leu Ser Leu Asn Pro Tyr Thr Asn Leu Asn Leu Thr Ala Ala
 340 345 350
 Tyr Asn Ser Gly Arg Gln Lys Tyr Pro Lys Gly Ser Lys Phe Thr Gly
 355 360 365
 Trp Gly Leu Leu Lys Asp Phe Glu Thr Tyr Asn Asn Ala Lys Ile Leu
 370 375 380
 Asp Leu Asn Asn Thr Ala Thr Phe Arg Leu Pro Arg Glu Thr Glu Leu
 385 390 395 400
 Gln Thr Thr Leu Gly Phe Asn Tyr Phe His Asn Glu Tyr Gly Lys Asn
 405 410 415
 Arg Phe Pro Glu Glu Leu Gly Leu Phe Phe Asp Gly Pro Asp Gln Asp
 420 425 430
 Asn Gly Leu Tyr Ser Tyr Leu Gly Arg Phe Lys Gly Asp Lys Gly Leu
 435 440 445
 Leu Pro Gln Lys Ser Thr Ile Val Gln Pro Ala Gly Ser Gln Tyr Phe
 450 455 460
 Asn Thr Phe Tyr Phe Asp Ala Ala Leu Lys Lys Asp Ile Tyr Arg Leu
 465 470 475 480
 Asn Tyr Ser Thr Asn Thr Val Gly Tyr Arg Phe Gly Gly Glu Tyr Thr
 485 490 495
 Gly Tyr Tyr Gly Ser Asp Asp Glu Phe Lys Arg Ala Phe Gly Glu Asn
 500 505 510
 Ser Pro Thr Tyr Lys Lys His Cys Asn Arg Ser Cys Gly Ile Tyr Glu
 515 520 525
 Pro Val Leu Lys Lys Tyr Gly Lys Lys Arg Ala Asn Asn His Ser Val
 530 535 540
 Ser Ile Ser Ala Asp Phe Gly Asp Tyr Phe Met Pro Phe Ala Ser Tyr
 545 550 555 560
 Ser Arg Thr His Arg Met Pro Asn Ile Gln Glu Met Tyr Phe Ser Gln
 565 570 575
 Ile Gly Asp Ser Gly Val His Thr Ala Leu Lys Pro Glu Arg Ala Asn
 580 585 590

Thr Trp Gln Phe Gly Phe Asn Thr Tyr Lys Lys Gly Leu Leu Lys Gln
 595 600 605
 Asp Asp Thr Leu Gly Leu Lys Leu Val Gly Tyr Arg Ser Arg Ile Asp
 610 615 620
 Asn Tyr Ile His Asn Val Tyr Gly Lys Trp Trp Asp Leu Asn Gly Asp
 625 630 635 640
 Ile Pro Ser Trp Val Ser Ser Thr Gly Leu Ala Tyr Thr Ile Gln His
 645 650 655
 Arg Asn Phe Lys Asp Lys Val His Lys His Gly Phe Glu Leu Glu Leu
 660 665 670
 Asn Tyr Asp Tyr Gly Arg Phe Phe Thr Asn Leu Ser Tyr Ala Tyr Gln
 675 680 685
 Lys Ser Thr Gln Pro Thr Asn Phe Ser Asp Ala Ser Glu Ser Pro Asn
 690 695 700
 Asn Ala Ser Lys Glu Asp Gln Leu Lys Gln Gly Tyr Gly Leu Ser Arg
 705 710 715 720
 Val Ser Ala Leu Pro Arg Asp Tyr Gly Arg Leu Glu Val Gly Thr Arg
 725 730 735
 Trp Leu Gly Asn Lys Leu Thr Leu Gly Gly Ala Met Arg Tyr Phe Gly
 740 745 750
 Lys Ser Ile Arg Ala Thr Ala Glu Glu Arg Tyr Ile Asp Gly Thr Asn
 755 760 765
 Gly Gly Asn Thr Ser Asn Phe Arg Gln Leu Gly Lys Arg Ser Ile Lys
 770 775 780
 Gln Thr Glu Thr Leu Ala Arg Gln Pro Leu Ile Phe Asp Phe Tyr Ala
 785 790 795 800
 Ala Tyr Glu Pro Lys Lys Asn Leu Ile Phe Arg Ala Glu Val Lys Asn
 805 810 815
 Leu Phe Asp Arg Arg Tyr Ile Asp Pro Leu Asp Ala Gly Asn Asp Ala
 820 825 830
 Ala Thr Gln Arg Tyr Tyr Ser Ser Phe Asp Pro Lys Asp Lys Asp Glu
 835 840 845
 Asp Val Thr Cys Asn Ala Asp Lys Thr Leu Cys Asn Gly Lys Tyr Gly
 850 855 860
 Gly Thr Ser Lys Ser Val Leu Thr Asn Phe Ala Arg Gly Arg Thr Phe
 865 870 875 880
 Leu Met Thr Met Ser Tyr Lys Phe

<210> 879

<211> 2616

<212> PRT

<213> Neisseria meningitidis

<400> 879

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Cys Gly Thr Ala Thr Cys Gly Ala Cys Cys Cys Gly Thr Cys Ala Gly
35 40 45

Gly Ala Thr Ala Thr Ala Thr Thr Cys Ala Ala Ala Thr Cys Cys Ala
50 55 60

Asn Cys Gly Ala Ala Ala Ala Cys Cys Thr Cys Gly Ala Cys Ala Ala
65 70 75 80

Cys Ala Thr Cys Gly Thr Ala Cys Gly Cys Ala Asn Cys Ala Thr Cys
85 90 95

Cys Cys Cys Gly Gly Thr Gly Cys Gly Thr Thr Thr Ala Cys Ala Cys
100 105 110

Ala Asn Cys Ala Ala Asn Ala Thr Ala Ala Ala Ala Gly Cys Thr Cys
115 120 125

Gly Gly Gly Cys Asn Thr Thr Gly Thr Gly Thr Cys Thr Thr Thr Gly
130 135 140

Ala Ala Thr Ala Thr Thr Cys Gly Cys Asn Gly Cys Gly Ala Cys Ala
145 150 155 160

Gly Cys Gly Gly Gly Thr Thr Cys Gly Gly Gly Cys Gly Gly Gly Thr
165 170 175

Cys Ala Ala Thr Ala Cys Asn Ala Thr Gly Gly Thr Asn Gly Ala Cys
180 185 190

Gly Gly Cys Ala Thr Cys Ala Cys Asn Cys Ala Asn Ala Cys Cys Thr
195 200 205

Thr Thr Thr Ala Thr Thr Cys Gly Ala Cys Thr Thr Cys Thr Ala Cys
210 215 220

Cys Gly Ala Thr Gly Cys Gly Gly Gly Cys Ala Gly Gly Gly Cys Ala
225 230 235 240

Gly Gly Cys Gly Gly Thr Thr Cys Ala Thr Cys Thr Cys Ala Ala Thr
245 250 255

Thr Cys Gly Gly Thr Gly Cys Ala Thr Cys Thr Gly Thr Cys Gly Ala
 260 265 270
 Cys Ala Gly Cys Ala Ala Thr Thr Thr Thr Ala Thr Asn Gly Cys Cys
 275 280 285
 Gly Gly Ala Cys Thr Gly Gly Ala Thr Gly Thr Cys Gly Thr Cys Ala
 290 295 300
 Ala Ala Gly Gly Cys Ala Gly Cys Thr Thr Cys Ala Gly Cys Gly Gly
 305 310 315 320
 Cys Thr Cys Gly Gly Cys Ala Gly Gly Cys Ala Thr Cys Ala Ala Cys
 325 330 335
 Ala Gly Cys Cys Thr Thr Gly Cys Cys Gly Gly Thr Thr Cys Gly Gly
 340 345 350
 Cys Gly Ala Ala Thr Cys Thr Gly Cys Gly Gly Ala Cys Thr Thr Thr
 355 360 365
 Ala Asn Gly Cys Gly Thr Gly Gly Ala Thr Gly Ala Thr Gly Thr Cys
 370 375 380
 Gly Thr Thr Cys Ala Gly Gly Gly Cys Ala Ala Thr Ala Asn Thr Ala
 385 390 395 400
 Cys Asn Thr Ala Cys Gly Gly Cys Cys Thr Gly Cys Thr Gly Cys Thr
 405 410 415
 Ala Ala Ala Ala Gly Gly Thr Cys Thr Gly Ala Cys Cys Gly Gly Cys
 420 425 430
 Ala Cys Cys Ala Ala Thr Thr Cys Ala Ala Cys Cys Ala Ala Ala Gly
 435 440 445
 Gly Thr Ala Ala Thr Gly Cys Gly Ala Thr Gly Gly Cys Gly Gly Cys
 450 455 460
 Gly Ala Thr Ala Gly Gly Thr Gly Cys Gly Cys Gly Cys Ala Ala Ala
 465 470 475 480
 Thr Gly Gly Cys Thr Gly Gly Ala Ala Ala Gly Cys Gly Gly Ala Gly
 485 490 495
 Cys Ala Thr Cys Thr Gly Thr Cys Gly Gly Thr Gly Thr Gly Cys Thr
 500 505 510
 Thr Thr Ala Cys Gly Gly Gly Cys Ala Cys Ala Gly Cys Ala Gly Gly
 515 520 525
 Cys Gly Cys Ala Gly Cys Gly Thr Gly Gly Cys Gly Cys Ala Ala Ala
 530 535 540
 Ala Thr Thr Ala Cys Cys Gly Cys Gly Thr Gly Gly Gly Cys Gly Gly
 545 550 555 560

850	855	860
Gly Ala Cys Gly Gly Cys Gly Thr Ala Thr Thr Cys Ala Ala Thr Ala		
865	870	875 880
Ala Ala Thr Ala Cys Ala Cys Gly Gly Cys Gly Cys Ala Ala Thr Thr		
	885	890 895
Thr Cys Gly Cys Gly Ala Thr Thr Thr Ala Ala Ala Cys Ala Cys Cys		
	900	905 910
Ala Ala Ala Ala Thr Cys Gly Gly Cys Ala Gly Cys Cys Gly Cys Ala		
	915	920 925
Ala Ala Ala Thr Cys Ala Thr Cys Ala Ala Cys Cys Gly Cys Ala Ala		
	930	935 940
Thr Thr Ala Thr Cys Ala Ala Thr Thr Cys Ala Ala Thr Thr Ala Cys		
945	950	955 960
Gly Gly Thr Thr Thr Gly Thr Cys Thr Thr Thr Gly Ala Ala Cys Cys		
	965	970 975
Cys Gly Thr Ala Thr Ala Cys Cys Ala Ala Cys Cys Thr Cys Ala Ala		
	980	985 990
Thr Cys Thr Gly Ala Cys Cys Gly Cys Ala Gly Cys Cys Thr Ala Cys		
	995	1000 1005
Ala Ala Thr Thr Cys Gly Gly Gly Cys Ala Gly Gly Cys Ala Gly		
	1010	1015 1020
Ala Ala Ala Thr Ala Thr Cys Cys Gly Ala Ala Ala Gly Gly Gly		
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Thr Cys Gly Ala Ala Gly Thr Thr Thr Ala Cys Ala Gly Gly Cys		
	1040	1045 1050
Thr Gly Gly Gly Gly Gly Cys Thr Thr Thr Thr Asn Ala Ala Ala		
	1055	1060 1065
Gly Ala Thr Thr Thr Thr Gly Ala Ala Ala Cys Cys Thr Ala Cys		
	1070	1075 1080
Ala Ala Cys Ala Ala Cys Gly Cys Ala Ala Ala Ala Ala Thr Cys		
	1085	1090 1095
Cys Thr Cys Gly Ala Cys Cys Thr Cys Ala Asn Cys Ala Ala Cys		
	1100	1105 1110
Ala Cys Cys Thr Cys Cys Ala Cys Cys Thr Thr Cys Cys Gly Gly		
	1115	1120 1125
Cys Thr Gly Cys Cys Cys Cys Gly Thr Gly Ala Ala Ala Cys Cys		
	1130	1135 1140

Gly	Ala	Gly	Thr	Thr	Gly	Cys	Ala	Ala	Ala	Cys	Cys	Ala	Cys	Thr
1145						1150					1155			
Thr	Thr	Gly	Gly	Gly	Cys	Thr	Thr	Cys	Ala	Ala	Thr	Thr	Ala	Thr
1160						1165					1170			
Thr	Thr	Cys	Cys	Ala	Cys	Ala	Ala	Cys	Gly	Ala	Ala	Thr	Ala	Cys
1175						1180					1185			
Gly	Gly	Cys	Ala	Ala	Ala	Ala	Ala	Cys	Cys	Gly	Cys	Thr	Thr	Thr
1190						1195					1200			
Cys	Cys	Thr	Gly	Ala	Ala	Gly	Ala	Ala	Thr	Thr	Gly	Gly	Gly	Gly
1205						1210					1215			
Cys	Thr	Gly	Thr	Thr	Thr	Thr	Thr	Cys	Gly	Ala	Cys	Gly	Gly	Thr
1220						1225					1230			
Cys	Cys	Gly	Gly	Ala	Thr	Cys	Ala	Asn	Gly	Ala	Cys	Ala	Ala	Cys
1235						1240					1245			
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1250						1255					1260			
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1265						1270					1275			
Gly	Gly	Cys	Gly	Ala	Thr	Ala	Ala	Ala	Gly	Gly	Gly	Cys	Thr	Gly
1280						1285					1290			
Cys	Thr	Gly	Cys	Cys	Cys	Cys	Ala	Ala	Ala	Ala	Ala	Thr	Cys	Ala
1295						1300					1305			
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1310						1315					1320			
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1325						1330					1335			
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1340						1345					1350			
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1355						1360					1365			
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1370						1375					1380			
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1385						1390					1395			
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1400						1405					1410			
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1415						1420					1425			

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1430						1435					1440			
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1445						1450					1455			
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1460						1465					1470			
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1475						1480					1485			
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1490						1495					1500			
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1655						1660					1665			
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1670						1675					1680			
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Gly Gly Ala Thr Thr Gly	Thr Thr Ala Ala Ala	Ala Cys Ala Ala
1760	1765	1770
Gly Ala Thr Gly Ala Thr	Ala Thr Ala Thr Thr	Ala Gly Gly Ala
1775	1780	1785
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1790	1795	1800
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Gly Ala Cys Asn Ala Cys	Thr Ala Cys Ala Thr	Cys Cys Ala Cys
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Thr Gly Gly Thr Gly Gly	Gly Ala Thr Thr Thr	Gly Ala Ala Cys
1850	1855	1860
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1865	1870	1875
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1955	1960	1965
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1970	1975	1980

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Ala Cys	Cys Ala Ala Cys	Thr Thr	Cys Ala Gly Cys	Gly Ala Thr	2030	2035	2040
Gly Cys	Gly Ala Gly Cys	Gly Ala	Ala Ala Thr Cys	Gly Cys Cys Cys	2045	2050	2055
Ala Ala	Cys Ala Ala Thr	Gly Cys	Cys Gly Thr Cys	Cys Ala Ala Ala	2060	2065	2070
Gly Ala	Ala Gly Ala Cys	Cys Ala	Ala Ala Cys Thr	Cys Ala Ala Ala	2075	2080	2085
Cys Ala	Ala Gly Gly Thr	Thr Thr	Ala Thr Gly Gly	Gly Thr Thr Gly	2090	2095	2100
Ala Gly	Cys Ala Gly Gly	Gly Thr	Thr Thr Thr Cys	Cys Gly Cys Cys	2105	2110	2115
Cys Thr	Gly Cys Cys Gly	Cys Gly	Gly Ala Gly Ala	Thr Thr Ala Cys	2120	2125	2130
Gly Gly	Ala Cys Gly Thr	Thr Thr	Thr Gly Gly Ala	Ala Gly Thr Cys	2135	2140	2145
Gly Gly	Thr Ala Cys Gly	Cys Gly	Gly Cys Thr Gly	Gly Thr Thr Gly	2150	2155	2160
Gly Gly	Cys Ala Ala Cys	Ala Ala	Ala Ala Cys Thr	Gly Ala Cys Thr	2165	2170	2175
Thr Thr	Gly Gly Gly Cys	Gly Gly	Gly Cys Gly Cys	Gly Ala Thr Gly	2180	2185	2190
Cys Gly	Cys Thr Ala Thr	Thr Thr	Thr Cys Gly Gly	Cys Ala Ala Gly	2195	2200	2205
Ala Gly	Cys Ala Thr Cys	Cys Gly	Gly Cys Gly Cys	Gly Ala Cys Gly	2210	2215	2220
Gly Cys	Thr Gly Ala Ala	Gly Ala	Ala Ala Cys Gly	Cys Thr Ala Thr	2225	2230	2235
Ala Thr	Cys Gly Ala Cys	Gly Asn	Cys Ala Cys Cys	Ala Ala Thr	2240	2245	2250
Gly Gly	Gly Gly Asn Ala	Asn Asn	Asn Thr Ala Cys	Cys Ala Gly Cys	2255	2260	2265

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Cys Cys Gly Ala Ala Gly Ala Ala Ala Ala Ala Asn Cys Thr Thr	2360	2365	2370
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Gly Ala Cys Ala Gly Gly Cys Gly Thr Thr Ala Thr Ala Thr Cys	2405	2410	2415
Gly Ala Thr Cys Cys Gly Cys Thr Cys Gly Ala Thr Gly Cys Gly	2420	2425	2430
Gly Gly Cys Ala Ala Thr Gly Ala Thr Gly Cys Gly Gly Cys Ala	2435	2440	2445
Ala Cys Gly Cys Ala Gly Cys Gly Thr Thr Ala Thr Thr Ala Cys	2450	2455	2460
Ala Gly Thr Thr Cys Gly Thr Thr Cys Gly Ala Cys Cys Cys Gly	2465	2470	2475
Ala Ala Ala Gly Ala Cys Ala Ala Gly Gly Ala Cys Gly Ala Ala	2480	2485	2490
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Ala Cys Cys Thr Thr Thr Thr	Thr Gly Ala Thr Ala	Ala Cys Gly		
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 50 55 60

Gly Ile Thr Xaa Thr Phe Tyr Ser Thr Ser Thr Asp Ala Gly Arg Ala
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Gly Gly Ser Ser Gln Phe Gly Ala Ser Val Asp Ser Asn Phe Xaa Ala
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Gly Leu Asp Val Val Lys Gly Ser Phe Ser Gly Ser Ala Gly Ile Asn
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 Val Gln Gly Asn Xaa Thr Tyr Gly Leu Leu Leu Lys Gly Leu Thr Gly
 130 135 140
 Thr Asn Ser Thr Lys Gly Asn Ala Met Ala Ala Ile Gly Ala Arg Lys
 145 150 155 160
 Trp Leu Glu Ser Gly Ala Ser Val Gly Val Leu Tyr Gly His Ser Arg
 165 170 175
 Arg Ser Val Ala Gln Asn Tyr Arg Val Gly Gly Gly Gly Gln His Ile
 180 185 190
 Gly Asn Phe Gly Ala Glu Tyr Leu Glu Arg Arg Lys Gln Arg Tyr Phe
 195 200 205
 Glu Gln Glu Gly Gly Leu Lys Phe Asn Ser Asn Ser Gly Lys Trp Glu
 210 215 220
 Arg Asp Phe Gln Lys Ser Tyr Trp Lys Thr Lys Trp Tyr Gln Lys Tyr
 225 230 235 240
 Asp Ala Pro Gln Glu Leu Gln Lys Tyr Ile Glu Gly His Asp Lys Ser
 245 250 255
 Trp Arg Glu Asn Leu Ala Pro Gln Tyr Asp Ile Thr Pro Ile Asp Pro
 260 265 270
 Ser Ser Leu Lys Xaa Gln Ser Ala Gly Asn Leu Phe Lys Leu Glu Tyr
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 305 310 315 320
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 Asn Ser Gly Arg Gln Lys Tyr Pro Lys Gly Ser Lys Phe Thr Gly Trp
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 Gly Leu Xaa Lys Asp Phe Glu Thr Tyr Asn Asn Ala Lys Ile Leu Asp
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 Thr Thr Leu Gly Phe Asn Tyr Phe His Asn Glu Tyr Gly Lys Asn Arg

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Tyr Tyr Xaa Ser Asp Asp Glu Phe Lys Arg Ala Phe Gly Glu Asn Ser						
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Tyr Ile His Asn Val Tyr Gly Lys Trp Trp Asp Leu Asn Gly Asn Ile						
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Pro Ser Trp Val Ser Ser Thr Gly Leu Ala Tyr Thr Ile Gln His Arg						
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Asn Phe Lys Asp Lys Val His Lys His Gly Phe Glu Leu Glu Leu Asn						
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Tyr Asp Tyr Xaa Arg Phe Phe Thr Asn Leu Ser Tyr Ala Tyr Gln Lys						
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Ser Thr Gln Pro Thr Asn Phe Ser Asp Ala Ser Glu Ser Pro Asn Asn						
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 725 730 735
 Ser Ile Arg Ala Thr Ala Glu Glu Arg Tyr Ile Asp Xaa Thr Asn Gly
 740 745 750
 Xaa Xaa Thr Ser Asn Phe Arg Gln Leu Gly Lys Arg Ser Ile Xaa Gln
 755 760 765
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 Tyr Glu Pro Lys Lys Xaa Leu Ile Phe Arg Ala Glu Val Lys Asn Leu
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 Phe Asp Arg Arg Tyr Ile Asp Pro Leu Asp Ala Gly Asn Asp Ala Ala
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 Thr Gln Arg Tyr Tyr Ser Ser Phe Asp Pro Lys Asp Lys Asp Glu Glu
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 Thr Arg Gln Asp Val Phe Lys Ser Gly Glu Asn Leu Asp Asn Ile Val
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 Arg Ser Ile Pro Gly Ala Phe Thr Gln Gln Asp Lys Ser Ser Gly Ile
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 Met Val Asp Gly Ile Thr Gln Thr Phe Tyr Ser Thr Ser Thr Asp Ala
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 195 200 205
 Ala Arg Lys Trp Leu Glu Ser Gly Ala Ser Val Gly Val Leu Tyr Gly
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 His Ser Arg Arg Gly Val Ala Gln Asn Tyr Arg Val Gly Gly Gly Gly
 225 230 235 240
 Gln His Ile Gly Asn Phe Gly Glu Glu Tyr Leu Glu Arg Arg Lys Gln
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 Gln Tyr Phe Val Gln Glu Gly Gly Leu Lys Phe Asn Ala Gly Ser Gly
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 Lys Trp Glu Arg Asp Leu Gln Arg Gln Tyr Trp Lys Thr Lys Trp Tyr
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 Lys Lys Tyr Glu Asp Pro Gln Glu Leu Gln Lys Tyr Ile Glu Glu His

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Leu Asn Thr Arg Ile Gly Ser Arg Lys Ile Ile Asn Arg Asn Tyr Gln 355 360 365		
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Glu Leu Gln Thr Thr Leu Gly Phe Asn Tyr Phe His Asn Glu Tyr Gly 435 440 445		
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Gln Asp Asn Gly Leu Tyr Ser Tyr Leu Gly Arg Phe Lys Gly Asp Lys 465 470 475 480		
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 Ala Asn Thr Trp Gln Phe Gly Phe Asn Thr Tyr Lys Lys Gly Leu Leu
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 Lys Gln Asp Asp Ile Leu Gly Leu Lys Leu Val Gly Tyr Arg Ser Arg
 645 650 655
 Ile Asp Asn Tyr Ile His Asn Val Tyr Gly Lys Trp Trp Asp Leu Asn
 660 665 670
 Gly Asp Ile Pro Ser Trp Val Gly Ser Thr Gly Leu Ala Tyr Thr Ile
 675 680 685
 Arg His Arg Asn Phe Lys Asp Lys Val His Lys His Gly Phe Glu Leu
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 Pro Asn Asn Ala Ser Lys Glu Asp Gln Leu Lys Gln Gly Tyr Gly Leu
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 Thr Arg Trp Leu Gly Asn Lys Leu Thr Leu Gly Gly Ala Met Arg Tyr
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 Thr Asn Gly Gly Asn Thr Ser Asn Val Arg Gln Leu Gly Lys Arg Ser
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 Asp Glu Asp Val Thr Cys Asn Ala Asp Lys Thr Leu Cys Asn Gly Lys

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890

895

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 gaagatgtgc acgtcaaggc gaagcgcgta ccgaaagaca aaaaagtgtt taccgatgcg 180
 cgtgccgtat cgacccgtca ggatgtgttc aaatccggcg aaaacctcga caacatcgta 240
 cgcagcatal cgggtgcggt tacacagcaa gataaaagct cgggcattgt gtctttgaat 300
 attcgcggcg acagcgggtt cgggcgggtc aatacagatg tggacggcat cacgcagacc 360
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 cagggcaata atacctacgg cctgctgcta aaaggtctga ccggcaccaa ttcaacccaa 600
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 cagcacatcg gaaattttgg tgaagaatat ctggaacggc gcaaacagca atattttgta 780
 caagaggggtg gtttgaaatt caatgccggc agcggaaaat gggaaacggga tttgcaaagg 840
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aaccttattt tccgcgccga agtcaaaaac ctgttcgaca ggcgttatat cgatccgctc 2580
gatgcgggca atgatgcggc aacgcagcgt tattacagct cgttcgaccc gaaagacaag 2640
gacgaagacg taacgtgtaa tgctgataaa acgttggtgca acggcaaata cggcggcaca 2700
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aagttttaa 2769

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<211> 922
<212> PRT
<213> Neisseria gonorrhoeae

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Ser Glu Ala Gln Ile Gln Val Leu Glu Asp Val His Val Lys Ala Lys
35 40 45
Arg Val Pro Lys Asp Lys Lys Val Phe Thr Asp Ala Arg Ala Val Ser
50 55 60
Thr Arg Gln Asp Val Phe Lys Ser Gly Glu Asn Leu Asp Asn Ile Val
65 70 75 80
Arg Ser Ile Pro Gly Ala Phe Thr Gln Gln Asp Lys Ser Ser Gly Ile
85 90 95
Val Ser Leu Asn Ile Arg Gly Asp Ser Gly Phe Gly Arg Val Asn Thr
100 105 110
Met Val Asp Gly Ile Thr Gln Thr Phe Tyr Ser Thr Ser Thr Asp Ala
115 120 125
Gly Arg Ala Gly Gly Ser Ser Gln Phe Gly Ala Ser Val Asp Ser Asn
130 135 140
Phe Ile Ala Gly Leu Asp Val Val Lys Gly Ser Phe Ser Gly Ser Ala
145 150 155 160
Gly Ile Asn Ser Leu Ala Gly Ser Ala Asn Leu Arg Thr Leu Gly Val
165 170 175
Asp Asp Val Val Gln Gly Asn Asn Thr Tyr Gly Leu Leu Leu Lys Gly
180 185 190
Leu Thr Gly Thr Asn Ser Thr Lys Gly Asn Ala Met Ala Ala Ile Gly
195 200 205
Ala Arg Lys Trp Leu Glu Ser Gly Ala Ser Val Gly Val Leu Tyr Gly
210 215 220

His Ser Arg Arg Gly Val Ala Gln Asn Tyr Arg Val Gly Gly Gly Gly
 225 230 235 240
 Gln His Ile Gly Asn Phe Gly Glu Glu Tyr Leu Glu Arg Arg Lys Gln
 245 250 255
 Gln Tyr Phe Val Gln Glu Gly Gly Leu Lys Phe Asn Ala Gly Ser Gly
 260 265 270
 Lys Trp Glu Arg Asp Leu Gln Arg Gln Tyr Trp Lys Thr Lys Trp Tyr
 275 280 285
 Lys Lys Tyr Glu Asp Pro Gln Glu Leu Gln Lys Tyr Ile Glu Glu His
 290 295 300
 Asp Lys Ser Trp Arg Glu Asn Leu Ala Pro Gln Tyr Asp Ile Thr Pro
 305 310 315 320
 Ile Asp Pro Ser Gly Leu Lys Gln Gln Ser Ala Gly Asn Leu Phe Lys
 325 330 335
 Leu Glu Tyr Asp Gly Val Phe Asn Lys Tyr Thr Ala Gln Phe Arg Asp
 340 345 350
 Leu Asn Thr Arg Ile Gly Ser Arg Lys Ile Ile Asn Arg Asn Tyr Gln
 355 360 365
 Phe Asn Tyr Gly Leu Ser Leu Asn Pro Tyr Thr Asn Leu Asn Leu Thr
 370 375 380
 Ala Ala Tyr Asn Ser Gly Arg Gln Lys Tyr Pro Lys Gly Ala Lys Phe
 385 390 395 400
 Thr Gly Trp Gly Leu Leu Lys Asp Phe Glu Thr Tyr Asn Asn Ala Lys
 405 410 415
 Ile Leu Asp Leu Asn Asn Thr Ala Thr Phe Arg Leu Pro Arg Glu Thr
 420 425 430
 Glu Leu Gln Thr Thr Leu Gly Phe Asn Tyr Phe His Asn Glu Tyr Gly
 435 440 445
 Lys Asn Arg Phe Pro Glu Glu Leu Gly Leu Phe Phe Asp Gly Pro Asp
 450 455 460
 Gln Asp Asn Gly Leu Tyr Ser Tyr Leu Gly Arg Phe Lys Gly Asp Lys
 465 470 475 480
 Gly Leu Leu Pro Gln Lys Ser Thr Ile Val Gln Pro Ala Gly Ser Gln
 485 490 495
 Tyr Phe Asn Thr Phe Tyr Phe Asp Ala Ala Leu Lys Lys Asp Ile Tyr
 500 505 510
 Arg Leu Asn Tyr Ser Thr Asn Ala Ile Asn Tyr Arg Phe Gly Gly Glu

515					520					525					
Tyr	Thr	Gly	Tyr	Tyr	Gly	Ser	Glu	Asn	Glu	Phe	Lys	Arg	Ala	Phe	Gly
530						535					540				
Glu	Asn	Ser	Pro	Ala	Tyr	Lys	Glu	His	Cys	Asp	Pro	Ser	Cys	Gly	Leu
545					550					555					560
Tyr	Glu	Pro	Val	Leu	Lys	Lys	Tyr	Gly	Lys	Lys	Arg	Ala	Asn	Asn	His
				565					570					575	
Ser	Val	Ser	Ile	Ser	Ala	Asp	Phe	Gly	Asp	Tyr	Phe	Met	Pro	Phe	Ala
			580					585					590		
Gly	Tyr	Ser	Arg	Thr	His	Arg	Met	Pro	Asn	Ile	Gln	Glu	Met	Tyr	Phe
		595					600					605			
Ser	Gln	Ile	Gly	Asp	Ser	Gly	Val	His	Thr	Ala	Leu	Lys	Pro	Glu	Arg
610						615					620				
Ala	Asn	Thr	Trp	Gln	Phe	Gly	Phe	Asn	Thr	Tyr	Lys	Lys	Gly	Leu	Leu
625					630					635					640
Lys	Gln	Asp	Asp	Ile	Leu	Gly	Leu	Lys	Leu	Val	Gly	Tyr	Arg	Ser	Arg
				645					650					655	
Ile	Asp	Asn	Tyr	Ile	His	Asn	Val	Tyr	Gly	Lys	Trp	Trp	Asp	Leu	Asn
			660						665					670	
Gly	Asp	Ile	Pro	Ser	Trp	Val	Gly	Ser	Thr	Gly	Leu	Ala	Tyr	Thr	Ile
		675					680					685			
Arg	His	Arg	Asn	Phe	Lys	Asp	Lys	Val	His	Lys	His	Gly	Phe	Glu	Leu
		690				695					700				
Glu	Leu	Asn	Tyr	Asp	Tyr	Gly	Arg	Phe	Phe	Thr	Asn	Leu	Ser	Tyr	Ala
705					710					715					720
Tyr	Gln	Lys	Ser	Thr	Gln	Pro	Thr	Asn	Phe	Ser	Asp	Ala	Ser	Glu	Ser
				725					730					735	
Pro	Asn	Asn	Ala	Ser	Lys	Glu	Asp	Gln	Leu	Lys	Gln	Gly	Tyr	Gly	Leu
			740					745					750		
Ser	Arg	Val	Ser	Ala	Leu	Pro	Arg	Asp	Tyr	Gly	Arg	Leu	Glu	Val	Gly
		755					760					765			
Thr	Arg	Trp	Leu	Gly	Asn	Lys	Leu	Thr	Leu	Gly	Gly	Ala	Met	Arg	Tyr
		770				775					780				
Phe	Gly	Lys	Ser	Ile	Arg	Ala	Thr	Ala	Glu	Glu	Arg	Tyr	Ile	Asp	Gly
785					790					795					800
Thr	Asn	Gly	Gly	Asn	Thr	Ser	Asn	Val	Arg	Gln	Leu	Gly	Lys	Arg	Ser
				805					810					815	

Ile Lys Gln Thr Glu Thr Leu Ala Arg Gln Pro Leu Ile Phe Asp Phe
820 825 830

Tyr Ala Ala Tyr Glu Pro Lys Lys Asn Leu Ile Phe Arg Ala Glu Val
835 840 845

Lys Asn Leu Phe Asp Arg Arg Tyr Ile Asp Pro Leu Asp Ala Gly Asn
850 855 860

Asp Ala Ala Thr Gln Arg Tyr Tyr Ser Ser Phe Asp Pro Lys Asp Lys
865 870 875 880

Asp Glu Asp Val Thr Cys Asn Ala Asp Lys Thr Leu Cys Asn Gly Lys
885 890 895

Tyr Gly Gly Thr Ser Lys Ser Val Leu Thr Asn Phe Ala Arg Gly Arg
900 905 910

Thr Phe Leu Met Thr Met Ser Tyr Lys Phe
915 920

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<211> 498
<212> DNA
<213> Neisseria meningitidis

<400> 885
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aaaggcagtt acggcatatg ggaaatgctg ggctacaccg ccctcaaaat gcccgccgcg 180
gcctacgaac tgattcccct cgccgtcctt atcggcggac tggctctcct cagccagctt 240
gccgcccggca gcgaactgac cgtcatcaaa gccagcggca tgagcaccaa aaagtgtgtg 300
ttgattctgt cgcagttcgg ttttattttt gctattgcca ccgtcgcgct cggcgaatgg 360
gttgcgccca cactgagcca aaaagccgaa aacatcaaag ccgcccgcct caacggcaaa 420
atcagcaccg gcaataccgg cctttggctg aaagaaaaaa acagcgtgat caatgtgcgc 480
gaaatgttgc ccgaccat 498

<210> 886
<211> 166
<212> PRT
<213> Neisseria meningitidis

<400> 886
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Val Tyr Ala Leu Leu Ala Phe Leu Ala Leu Tyr Ser Phe Phe Glu Ile
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Leu Tyr Glu Thr Gly Asn Leu Gly Lys Gly Ser Tyr Gly Ile Trp Glu
35 40 45

Met Leu Gly Tyr Thr Ala Leu Lys Met Pro Ala Arg Ala Tyr Glu Leu
50 55 60

Ile Pro Leu Ala Val Leu Ile Gly Gly Leu Val Ser Leu Ser Gln Leu
65 70 75 80

Ala Ala Gly Ser Glu Leu Thr Val Ile Lys Ala Ser Gly Met Ser Thr
85 90 95

Lys Lys Leu Leu Leu Ile Leu Ser Gln Phe Gly Phe Ile Phe Ala Ile
100 105 110

Ala Thr Val Ala Leu Gly Glu Trp Val Ala Pro Thr Leu Ser Gln Lys
115 120 125

Ala Glu Asn Ile Lys Ala Ala Ala Ile Asn Gly Lys Ile Ser Thr Gly
130 135 140

Asn Thr Gly Leu Trp Leu Lys Glu Lys Asn Ser Val Ile Asn Val Arg
145 150 155 160

Glu Met Leu Pro Asp His
165

<210> 887
<211> 980
<212> DNA
<213> Neisseria meningitidis

<400> 887

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gcctacgaac	tgattcccct	cgccgtcctt	atcgggcgac	tggtctccct	cagccagctt	240
gccgcccggc	gcgaactgac	cgtcatcaaa	gccagcggca	tgagcaccaa	aaagctgctg	300
ttgattctgt	cgcagttcgg	ttttattttt	gctattgcca	ccgtcgcgct	cggcgaatgg	360
gttgcgcccc	cactgagcca	aaaagccgaa	aacatcaaag	ccgccgccat	caacggcaaa	420
atcagcaccg	gcaataccgg	cctttggctg	aaagaaaaaa	acagcrtkat	caatgtgcgc	480
gaaatggtgc	ccgaccatac	gcttttgggc	atcaaaattt	gggcgcgcaa	cgataaaaaac	540
gaattggcag	aggcagtgga	agccgattcc	gccgttttga	acagcgacgg	cagttggcag	600
ttgaaaaaca	tccgccgcag	cacgcttggc	gaagacaaag	tcgaggtctc	tattgcggct	660
gaagaaaact	ggccgatttc	cgtcaaaccg	aacctgatgg	acgtattgct	cgtcaaacc	720
gaccaaattg	ccgtcggcga	actgaccacc	tacatccgcc	acctccaaaa	caacagccaa	780
aacacccgaa	tctacgccat	cgcattggtg	cgcaaattgg	tttaccgccg	cgcagcctgg	840
gtgatggcgc	tcgtcgccct	tgccctttacc	ccgcaaacca	cccgccacgg	caatatgggc	900
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<210> 888
<211> 326
<212> PRT
<213> Neisseria meningitidis

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<222> (156)..(156)
<223> Xaa= any amino acid

<220>
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 <222> (309)..(309)
 <223> Xaa= any amino acid

 <400> 888
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 Val Tyr Ala Leu Leu Ala Phe Leu Ala Leu Tyr Ser Phe Phe Glu Ile
 20 25 30

 Leu Tyr Glu Thr Gly Asn Leu Gly Lys Gly Ser Tyr Gly Ile Trp Glu
 35 40 45

 Met Leu Gly Tyr Thr Ala Leu Lys Met Pro Ala Arg Ala Tyr Glu Leu
 50 55 60

 Ile Pro Leu Ala Val Leu Ile Gly Gly Leu Val Ser Leu Ser Gln Leu
 65 70 75 80

 Ala Ala Gly Ser Glu Leu Thr Val Ile Lys Ala Ser Gly Met Ser Thr
 85 90 95

 Lys Lys Leu Leu Leu Ile Leu Ser Gln Phe Gly Phe Ile Phe Ala Ile
 100 105 110

 Ala Thr Val Ala Leu Gly Glu Trp Val Ala Pro Thr Leu Ser Gln Lys
 115 120 125

 Ala Glu Asn Ile Lys Ala Ala Ala Ile Asn Gly Lys Ile Ser Thr Gly
 130 135 140

 Asn Thr Gly Leu Trp Leu Lys Glu Lys Asn Ser Xaa Ile Asn Val Arg
 145 150 155 160

 Glu Met Leu Pro Asp His Thr Leu Leu Gly Ile Lys Ile Trp Ala Arg
 165 170 175

 Asn Asp Lys Asn Glu Leu Ala Glu Ala Val Glu Ala Asp Ser Ala Val
 180 185 190

 Leu Asn Ser Asp Gly Ser Trp Gln Leu Lys Asn Ile Arg Arg Ser Thr
 195 200 205

 Leu Gly Glu Asp Lys Val Glu Val Ser Ile Ala Ala Glu Glu Asn Trp

 210 215 220

 Pro Ile Ser Val Lys Arg Asn Leu Met Asp Val Leu Leu Val Lys Pro
 225 230 235 240

 Asp Gln Met Ser Val Gly Glu Leu Thr Thr Tyr Ile Arg His Leu Gln
 245 250 255

 Asn Asn Ser Gln Asn Thr Arg Ile Tyr Ala Ile Ala Trp Trp Arg Lys

260	265	270
Leu Val Tyr Pro Ala Ala Ala Trp Val Met Ala Leu Val Ala Phe Ala		
275	280	285
Phe Thr Pro Gln Thr Thr Arg His Gly Asn Met Gly Leu Lys Leu Phe		
290	295	300
Gly Gly Ile Cys Xaa Gly Leu Leu Phe His Leu Ala Gly Arg Leu Phe		
305	310	315
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Gly Phe Thr Ser Gln Leu		
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<210> 889
 <211> 1071
 <212> DNA
 <213> Neisseria meningitidis

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 <223> Xaa= any amino acid

<220>
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 <222> (153)..(153)
 <223> Xaa= any amino acid

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 <223> Xaa= any amino acid

<220>
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 <223> Xaa= any amino acid

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 <223> Xaa= any amino acid

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 <223> Xaa= any amino acid

<220>
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 <222> (1001)..(1001)
 <223> Xaa= any amino acid

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 aaaggcagtt acggcatatg ggaaatgntg ggntacaccg cctcaaaat gnccgcccgc 180
 gcctacgaac tgatgcccct cgcgcgcctt atcggcggac tggctctctnt cagccagctt 240
 gccgcgggca gcgaactgan cgtcatcaaa gccagcggca tgagcaccaa aaagctgctg 300
 ttgattctgt cgcagttcgg ttttattttt gctattgcc aacgtcgcgt cggcgaatgg 360
 gttgcgcccc cactgagcca aaaagccgaa aacatcaaag ccgcggccat caacggcaaa 420
 atcagtaccg gcaataccgg cctttggctg aaagaaaaaa acagcattat caatgtgcgc 480
 gaaatgttgc ccgaccatac cctgctgggc attaaaatct gggcccgcaa cgataaaaac 540
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 gaagaaaant ggccgatttc cgtcaaacgc aacctgatgg acgtattgct cgtcaaacc 720
 gaccaaatgt ccgtcggcga actgaccacc tacatccgcc acctccaaan nnacagccaa 780
 aacaccgcaa tctacgccat cgcattggtg cgcaaattgg tttacccgc cgcagcctgg 840
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 gccttcgcct tgctcgccgt ttggctgata cgcaaacagg aaaaacgcta a 1071

<210> 890
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 <212> PRT
 <213> Neisseria meningitidis

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 <223> Xaa= any amino acid

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 <223> Xaa= any amino acid

<220>
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<222> (77)..(77)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (87)..(87)
 <223> Xaa= any amino acid

<220>
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 <222> (223)..(223)
 <223> Xaa= any amino acid

<220>
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 <223> Xaa= any amino acid

<220>
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 <223> Xaa= any amino acid

<220>
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 <223> Xaa= any amino acid

<220>
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 <222> (334)..(334)
 <223> Xaa= any amino acid

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 Leu Tyr Glu Thr Gly Asn Leu Gly Lys Gly Ser Tyr Gly Ile Trp Glu
 35 40 45
 Met Xaa Gly Tyr Thr Ala Leu Lys Met Xaa Ala Arg Ala Tyr Glu Leu
 50 55 60
 Met Pro Leu Ala Val Leu Ile Gly Gly Leu Val Ser Xaa Ser Gln Leu
 65 70 75 80
 Ala Ala Gly Ser Glu Leu Xaa Val Ile Lys Ala Ser Gly Met Ser Thr
 85 90 95
 Lys Lys Leu Leu Leu Ile Leu Ser Gln Phe Gly Phe Ile Phe Ala Ile
 100 105 110

Ala Thr Val Ala Leu Gly Glu Trp Val Ala Pro Thr Leu Ser Gln Lys
 115 120 125

Ala Glu Asn Ile Lys Ala Ala Ala Ile Asn Gly Lys Ile Ser Thr Gly
 130 135 140

Asn Thr Gly Leu Trp Leu Lys Glu Lys Asn Ser Ile Ile Asn Val Arg
 145 150 155 160

Glu Met Leu Pro Asp His Thr Leu Leu Gly Ile Lys Ile Trp Ala Arg
 165 170 175

Asn Asp Lys Asn Glu Leu Ala Glu Ala Val Glu Ala Asp Ser Ala Val
 180 185 190

Leu Asn Ser Asp Gly Ser Trp Gln Leu Lys Asn Ile Arg Arg Ser Thr
 195 200 205

Leu Gly Glu Asp Lys Val Glu Val Ser Ile Ala Ala Glu Glu Xaa Trp
 210 215 220

Pro Ile Ser Val Lys Arg Asn Leu Met Asp Val Leu Leu Val Lys Pro
 225 230 235 240

Asp Gln Met Ser Val Gly Glu Leu Thr Thr Tyr Ile Arg His Leu Gln
 245 250 255

Xaa Xaa Ser Gln Asn Thr Arg Ile Tyr Ala Ile Ala Trp Trp Arg Lys
 260 265 270

Leu Val Tyr Pro Ala Ala Ala Trp Val Met Ala Leu Val Ala Phe Ala
 275 280 285

Phe Thr Pro Gln Thr Thr Arg His Gly Asn Met Gly Leu Lys Xaa Phe
 290 295 300

Gly Gly Ile Cys Leu Gly Leu Leu Phe His Leu Ala Gly Arg Leu Phe
 305 310 315 320

Xaa Phe Thr Ser Gln Leu Tyr Gly Ile Pro Pro Phe Leu Xaa Gly Ala
 325 330 335

Leu Pro Thr Ile Ala Phe Ala Leu Leu Ala Val Trp Leu Ile Arg Lys
 340 345 350

Gln Glu Lys Arg
 355

<210> 891
 <211> 1071

<212> DNA
 <213> Neisseria gonorrhoeae

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60

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aaaggcagtt	acggcatatg	ggaaatgctg	ggctacaccg	ccctcaaaat	gcccgccgcg	180
gcctacgaac	tcatgcccct	cgccgtcctc	atcggcggac	tggcctctct	cagccagctt	240
gccgccggca	gcgaactggc	cgtcatcaaa	gccagcggca	tgagcaccaa	aaagctgctg	300
ttgattctgt	ctcagttcgg	ttttattttt	gctattgccg	ccgtcgcgct	cggcgaatgg	360
gttgcgccca	cgctgagcca	aaaagccgaa	aacatcaaag	ccgccgccat	taacggcaaa	420
atcagcaccg	gcaataccgg	cctttggctg	aaagaaaaaa	ccagcattat	caatgtgcgc	480
ggaatgttgc	ccgaccatac	gcttttgggc	atcaaaattt	gggcgcgcaa	cgataaaaaac	540
gaattggcag	aggcagtggg	agccgattcc	gccgttttga	acagcgacgg	cagctggcag	600
ttgaaaaaca	tccgccgcag	catcatgggt	acagacaaaa	tcgaaacatc	cgcgcgcgcc	660
gaagaaactt	ggccgattgc	cgtcagacgc	aacctgatgg	acgtattgct	cgtcaagccc	720
gaccaaagt	ccgtcggcga	gctgaccacc	tacatccgcc	acctccaaaa	caacagccaa	780
aacacccaaa	tctacgccat	cgcatggtgg	cgtaaaactg	tttaccctgt	cgcgcgatgg	840
gtcatggcgc	tcgttgccct	cgcttttacg	ccgcaaacca	cgcgccacgg	caatatgggc	900
ttaaaactct	tcggcggcat	ctgtctcgga	ttgctgttcc	accttgccgg	caggctcttc	960
gggtttacca	gccaactcta	cggcacccca	cccttctctg	ccggcgccact	gcctaccata	1020
gccttcgcct	tgctcgctgt	ttggctgata	cgcaaacagg	aaaaacgttg	a	1071

<210> 892
 <211> 356
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 892
 Met Asn Leu Ile Ser Arg Tyr Ile Ile Arg Gln Met Ala Val Met Ala
 1 5 10 15
 Val Tyr Ala Leu Leu Ala Phe Leu Ala Leu Tyr Ser Phe Phe Glu Ile
 20 25 30
 Leu Tyr Glu Thr Gly Asn Leu Gly Lys Gly Ser Tyr Gly Ile Trp Glu
 35 40 45
 Met Leu Gly Tyr Thr Ala Leu Lys Met Pro Ala Arg Ala Tyr Glu Leu
 50 55 60
 Met Pro Leu Ala Val Leu Ile Gly Gly Leu Ala Ser Leu Ser Gln Leu
 65 70 75 80
 Ala Ala Gly Ser Glu Leu Ala Val Ile Lys Ala Ser Gly Met Ser Thr
 85 90 95
 Lys Lys Leu Leu Leu Ile Leu Ser Gln Phe Gly Phe Ile Phe Ala Ile
 100 105 110
 Ala Ala Val Ala Leu Gly Glu Trp Val Ala Pro Thr Leu Ser Gln Lys
 115 120 125
 Ala Glu Asn Ile Lys Ala Ala Ala Ile Asn Gly Lys Ile Ser Thr Gly
 130 135 140
 Asn Thr Gly Leu Trp Leu Lys Glu Lys Thr Ser Ile Ile Asn Val Arg
 145 150 155 160
 Gly Met Leu Pro Asp His Thr Leu Leu Gly Ile Lys Ile Trp Ala Arg

165										170					175				
Asn	Asp	Lys	Asn	Glu	Leu	Ala	Glu	Ala	Val	Glu	Ala	Asp	Ser	Ala	Val				
			180						185				190						
Leu	Asn	Ser	Asp	Gly	Ser	Trp	Gln	Leu	Lys	Asn	Ile	Arg	Arg	Ser	Ile				
		195					200					205							
Met	Gly	Thr	Asp	Lys	Ile	Glu	Thr	Ser	Ala	Ala	Ala	Glu	Glu	Thr	Trp				
	210					215						220							
Pro	Ile	Ala	Val	Arg	Arg	Asn	Leu	Met	Asp	Val	Leu	Leu	Val	Lys	Pro				
225					230					235				240					
Asp	Gln	Met	Ser	Val	Gly	Glu	Leu	Thr	Thr	Tyr	Ile	Arg	His	Leu	Gln				
				245					250					255					
Asn	Asn	Ser	Gln	Asn	Thr	Gln	Ile	Tyr	Ala	Ile	Ala	Trp	Trp	Arg	Lys				
			260					265					270						
Leu	Val	Tyr	Pro	Val	Ala	Ala	Trp	Val	Met	Ala	Leu	Val	Ala	Phe	Ala				
	275						280					285							
Phe	Thr	Pro	Gln	Thr	Thr	Arg	His	Gly	Asn	Met	Gly	Leu	Lys	Leu	Phe				
	290					295					300								
Gly	Gly	Ile	Cys	Leu	Gly	Leu	Leu	Phe	His	Leu	Ala	Gly	Arg	Leu	Phe				
305					310					315				320					
Gly	Phe	Thr	Ser	Gln	Leu	Tyr	Gly	Thr	Pro	Pro	Phe	Leu	Ala	Gly	Ala				
				325					330					335					
Leu	Pro	Thr	Ile	Ala	Phe	Ala	Leu	Leu	Ala	Val	Trp	Leu	Ile	Arg	Lys				
		340						345					350						
Gln	Glu	Lys	Arg																
	355																		
<210>	893																		
<211>	287																		
<212>	PRT																		
<213>	Neisseria meningitidis																		
<400>	893																		
Met	Lys	Thr	Phe	Phe	Lys	Thr	Leu	Ser	Ala	Ala	Ala	Leu	Ala	Leu	Ile				
1				5				10						15					
Leu	Ala	Ala	Cys	Gly	Gly	Gln	Lys	Asp	Ser	Ala	Pro	Ala	Ala	Ser	Ala				
		20						25				30							
Ser	Ala	Ala	Ala	Asp	Asn	Gly	Ala	Ala	Lys	Lys	Glu	Ile	Val	Phe	Gly				
		35				40						45							
Thr	Thr	Val	Gly	Asp	Phe	Gly	Asp	Met	Val	Lys	Glu	Gln	Ile	Gln	Ala				
	50					55						60							

Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp
 65 70 75 80
 Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn
 85 90 95
 Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn
 100 105 110
 Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu
 115 120 125
 Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr
 130 135 140
 Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met
 145 150 155 160
 Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu
 165 170 175
 Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile
 180 185 190
 Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp
 195 200 205
 Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu
 210 215 220
 Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser
 225 230 235 240
 Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr
 245 250 255
 Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe
 260 265 270
 Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
 275 280 285
 <210> 894
 <211> 287
 <212> PRT
 <213> Neisseria meningitidis
 <400> 894
 Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile
 1 5 10 15
 Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala
 20 25 30
 Ser Ala Ala Ala Asp Asn Gly Ala Ala Lys Lys Glu Ile Val Phe Gly
 35 40 45

Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu Gln Ile Gln Ala
50 55 60

Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp
65 70 75 80

Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn
85 90 95

Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn
100 105 110

Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu
115 120 125

Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr
130 135 140

Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met
145 150 155 160

Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu
165 170 175

Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile
180 185 190

Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp
195 200 205

Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu
210 215 220

Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser
225 230 235 240

Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr
245 250 255

Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe
260 265 270

Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
275 280 285

<210> 895

<211> 287

<212> PRT

<213> Neisseria meningitidis

<400> 895

Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile
1 5 10 15

Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala

20					25					30					
Ser	Ala	Ala	Ala	Asp	Asn	Gly	Ala	Ala	Lys	Lys	Glu	Ile	Val	Phe	Gly
	35						40					45			
Thr	Thr	Val	Gly	Asp	Phe	Gly	Asp	Met	Val	Lys	Glu	Gln	Ile	Gln	Ala
	50					55					60				
Glu	Leu	Glu	Lys	Lys	Gly	Tyr	Thr	Val	Lys	Leu	Val	Glu	Phe	Thr	Asp
65					70					75				80	
Tyr	Val	Arg	Pro	Asn	Leu	Ala	Leu	Ala	Glu	Gly	Glu	Leu	Asp	Ile	Asn
				85					90					95	
Val	Phe	Gln	His	Lys	Pro	Tyr	Leu	Asp	Asp	Phe	Lys	Lys	Glu	His	Asn
			100					105					110		
Leu	Asp	Ile	Thr	Glu	Val	Phe	Gln	Val	Pro	Thr	Ala	Pro	Leu	Gly	Leu
	115						120					125			
Tyr	Pro	Gly	Lys	Leu	Lys	Ser	Leu	Glu	Glu	Val	Lys	Asp	Gly	Ser	Thr
	130					135						140			
Val	Ser	Ala	Pro	Asn	Asp	Pro	Ser	Asn	Phe	Ala	Arg	Val	Leu	Val	Met
145					150					155					160
Leu	Asp	Glu	Leu	Gly	Trp	Ile	Lys	Leu	Lys	Asp	Gly	Ile	Asn	Pro	Leu
			165					170					175		
Thr	Ala	Ser	Lys	Ala	Asp	Ile	Ala	Glu	Asn	Leu	Lys	Asn	Ile	Lys	Ile
		180						185					190		
Val	Glu	Leu	Glu	Ala	Ala	Gln	Leu	Pro	Arg	Ser	Arg	Ala	Asp	Val	Asp
		195					200					205			
Phe	Ala	Val	Val	Asn	Gly	Asn	Tyr	Ala	Ile	Ser	Ser	Gly	Met	Lys	Leu
	210				215						220				
Thr	Glu	Ala	Leu	Phe	Gln	Glu	Pro	Ser	Phe	Ala	Tyr	Val	Asn	Trp	Ser
225					230					235					240
Ala	Val	Lys	Thr	Ala	Asp	Lys	Asp	Ser	Gln	Trp	Leu	Lys	Asp	Val	Thr
			245						250					255	
Glu	Ala	Tyr	Asn	Ser	Asp	Ala	Phe	Lys	Ala	Tyr	Ala	His	Lys	Arg	Phe
		260						265					270		
Glu	Gly	Tyr	Lys	Ser	Pro	Ala	Ala	Trp	Asn	Glu	Gly	Ala	Ala	Lys	
	275						280					285			

<210> 896
 <211> 287
 <212> PRT
 <213> Neisseria meningitidis

<400> 896

Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile
1 5 10 15
Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala
20 25 30
Ser Ala Ala Ala Asp Asn Gly Ala Ala Lys Lys Glu Ile Val Phe Gly
35 40 45
Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu Gln Ile Gln Ala
50 55 60
Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp
65 70 75 80
Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn
85 90 95
Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn
100 105 110
Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu
115 120 125
Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr
130 135 140
Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met
145 150 155 160
Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu
165 170 175
Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile
180 185 190
Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp
195 200 205
Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu
210 215 220
Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser
225 230 235 240
Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr
245 250 255
Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe
260 265 270
Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
275 280 285

<210> 897

<211> 287
 <212> PRT
 <213> Neisseria meningitidis

<400> 897

Met	Lys	Thr	Phe	Phe	Lys	Thr	Leu	Ser	Ala	Ala	Ala	Leu	Ala	Leu	Ile
1				5					10					15	
Leu	Ala	Ala	Cys	Gly	Gly	Gln	Lys	Asp	Ser	Ala	Pro	Ala	Ala	Ser	Ala
			20					25						30	
Ser	Ala	Ala	Ala	Asp	Asn	Gly	Ala	Ala	Lys	Lys	Glu	Ile	Val	Phe	Gly
			35				40					45			
Thr	Thr	Val	Gly	Asp	Phe	Gly	Asp	Met	Val	Lys	Glu	Gln	Ile	Gln	Ala
	50					55					60				
Glu	Leu	Glu	Lys	Lys	Gly	Tyr	Thr	Val	Lys	Leu	Val	Glu	Phe	Thr	Asp
65					70					75					80
Tyr	Val	Arg	Pro	Asn	Leu	Ala	Leu	Ala	Glu	Gly	Glu	Leu	Asp	Ile	Asn
				85					90					95	
Val	Phe	Gln	His	Lys	Pro	Tyr	Leu	Asp	Asp	Phe	Lys	Lys	Glu	His	Asn
			100					105					110		
Leu	Asp	Ile	Thr	Glu	Val	Phe	Gln	Val	Pro	Thr	Ala	Pro	Leu	Gly	Leu
		115					120					125			
Tyr	Pro	Gly	Lys	Leu	Lys	Ser	Leu	Glu	Glu	Val	Lys	Asp	Gly	Ser	Thr
	130					135						140			
Val	Ser	Ala	Pro	Asn	Asp	Pro	Ser	Asn	Phe	Ala	Arg	Val	Leu	Val	Met
145					150					155					160
Leu	Asp	Glu	Leu	Gly	Trp	Ile	Lys	Leu	Lys	Asp	Gly	Ile	Asn	Pro	Leu
			165					170					175		
Thr	Ala	Ser	Lys	Ala	Asp	Ile	Ala	Glu	Asn	Leu	Lys	Asn	Ile	Lys	Ile
			180					185					190		
Val	Glu	Leu	Glu	Ala	Ala	Gln	Leu	Pro	Arg	Ser	Arg	Ala	Asp	Val	Asp
		195					200					205			
Phe	Ala	Val	Val	Asn	Gly	Asn	Tyr	Ala	Ile	Ser	Ser	Gly	Met	Lys	Leu
	210					215					220				
Thr	Glu	Ala	Leu	Phe	Gln	Glu	Pro	Ser	Phe	Ala	Tyr	Val	Asn	Trp	Ser
225					230					235					240
Ala	Val	Lys	Thr	Ala	Asp	Lys	Asp	Ser	Gln	Trp	Leu	Lys	Asp	Val	Thr
				245					250					255	
Glu	Ala	Tyr	Asn	Ser	Asp	Ala	Phe	Lys	Ala	Tyr	Ala	His	Lys	Arg	Phe
			260					265					270		

Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
 275 280 285

<210> 898

<211> 287

<212> PRT

<213> Neisseria meningitidis

<400> 898

Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile
 1 5 10 15

Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala
 20 25 30

Ser Ala Ala Ala Asp Asn Gly Ala Glu Lys Lys Glu Ile Val Phe Gly
 35 40 45

Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu His Ile Gln Pro
 50 55 60

Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp
 65 70 75 80

Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn
 85 90 95

Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn
 100 105 110

Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu
 115 120 125

Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr
 130 135 140

Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met
 145 150 155 160

Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu
 165 170 175

Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile
 180 185 190

Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp
 195 200 205

Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu
 210 215 220

Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser
 225 230 235 240

Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr

	245	250	255
Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe	260	265	270
Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys	275	280	285
<210> 899			
<211> 287			
<212> PRT			
<213> Neisseria meningitidis			
<400> 899			
Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile	1	5	10
Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala	20	25	30
Ser Ala Ala Ala Asp Asn Gly Ala Glu Lys Lys Glu Ile Val Phe Gly	35	40	45
Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu His Ile Gln Pro	50	55	60
Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp	65	70	75
Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn	85	90	95
Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn	100	105	110
Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu	115	120	125
Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr	130	135	140
Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met	145	150	155
Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu	165	170	175
Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile	180	185	190
Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp	195	200	205
Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu	210	215	220

Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser
 225 230 235 240

Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr
 245 250 255

Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe
 260 265 270

Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
 275 280 285

<210> 900

<211> 287

<212> PRT

<213> Neisseria meningitidis

<400> 900

Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile
 1 5 10 15

Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala
 20 25 30

Ser Ala Ala Ala Asp Asn Gly Ala Glu Lys Lys Glu Ile Val Phe Gly
 35 40 45

Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu Gln Ile Gln Ala
 50 55 60

Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp
 65 70 75 80

Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn
 85 90 95

Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn
 100 105 110

Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu
 115 120 125

Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr
 130 135 140

Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met
 145 150 155 160

Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu
 165 170 175

Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile
 180 185 190

Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp
 195 200 205

Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu
 210 215 220

Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser
 225 230 235 240

Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr
 245 250 255

Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe
 260 265 270

Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
 275 280 285

<210> 901
 <211> 287
 <212> PRT
 <213> Neisseria meningitidis

<400> 901
 Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile
 1 5 10 15

Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala
 20 25 30

Ser Ala Ala Ala Asp Asn Gly Ala Glu Lys Lys Glu Ile Val Phe Gly
 35 40 45

Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu Gln Ile Gln Ala
 50 55 60

Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp
 65 70 75 80

Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn
 85 90 95

Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn
 100 105 110

Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu
 115 120 125

Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr
 130 135 140

Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met
 145 150 155 160

Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu
 165 170 175

Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile

180	185	190
Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp		
195	200	205
Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu		
210	215	220
Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser		
225	230	235 240
Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr		
	245	250 255
Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe		
	260	265 270
Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys		
	275	280 285
<210> 902		
<211> 287		
<212> PRT		
<213> Neisseria meningitidis		
<400> 902		
Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile		
1	5	10 15
Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala		
	20	25 30
Ser Ala Ala Ala Asp Asn Gly Ala Glu Lys Lys Glu Ile Val Phe Gly		
	35	40 45
Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu Gln Ile Gln Ala		
	50	55 60
Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp		
65	70	75 80
Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn		
	85	90 95
Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn		
	100	105 110
Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu		
	115	120 125
Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr		
	130	135 140
Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met		
145	150	155 160

Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu
165 170 175

Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile
180 185 190

Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp
195 200 205

Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu
210 215 220

Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser
225 230 235 240

Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr
245 250 255

Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe
260 265 270

Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
275 280 285

<210> 903

<211> 287

<212> PRT

<213> Neisseria meningitidis

<400> 903

Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile
1 5 10 15

Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala
20 25 30

Ser Ala Ala Ala Asp Asn Gly Ala Ala Lys Lys Glu Ile Val Phe Gly
35 40 45

Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu His Ile Gln Pro
50 55 60

Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp
65 70 75 80

Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn
85 90 95

Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn
100 105 110

Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu
115 120 125

Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr
130 135 140

Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met
 145 150 155 160

Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu
 165 170 175

Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile
 180 185 190

Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp
 195 200 205

Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu
 210 215 220

Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser
 225 230 235 240

Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr
 245 250 255

Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe
 260 265 270

Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
 275 280 285

<210> 904

<211> 287

<212> PRT

<213> Neisseria meningitidis

<400> 904

Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile
 1 5 10 15

Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala
 20 25 30

Ser Ala Ala Ala Asp Asn Gly Ala Ala Lys Lys Glu Ile Val Phe Gly
 35 40 45

Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu His Ile Gln Pro
 50 55 60

Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp
 65 70 75 80

Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn
 85 90 95

Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn
 100 105 110

Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu

115	120	125
Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr 130 135 140		
Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met 145 150 155 160		
Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu 165 170 175		
Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile 180 185 190		
Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp 195 200 205		
Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu 210 215 220		
Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser 225 230 235 240		
Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr 245 250 255		
Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe 260 265 270		
Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys 275 280 285		
<210> 905		
<211> 287		
<212> PRT		
<213> Neisseria meningitidis		
<400> 905		
Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile 1 5 10 15		
Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala 20 25 30		
Ser Ala Ala Ala Asp Asn Gly Ala Ala Lys Lys Glu Ile Val Phe Gly 35 40 45		
Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu His Ile Gln Pro 50 55 60		
Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp 65 70 75 80		
Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn 85 90 95		

Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn
 100 105 110
 Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu
 115 120 125
 Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr
 130 135 140
 Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met
 145 150 155 160
 Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu
 165 170 175
 Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile
 180 185 190
 Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp
 195 200 205
 Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu
 210 215 220
 Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser
 225 230 235 240
 Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr
 245 250 255
 Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe
 260 265 270
 Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
 275 280 285
 <210> 906
 <211> 287
 <212> PRT
 <213> Neisseria meningitidis
 <400> 906
 Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile
 1 5 10 15
 Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala
 20 25 30
 Ser Ala Ala Ala Asp Asn Gly Ala Ala Lys Lys Glu Ile Val Phe Gly
 35 40 45
 Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu Gln Ile Gln Pro
 50 55 60
 Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp
 65 70 75 80

Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn
85 90 95

Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn
100 105 110

Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu
115 120 125

Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr
130 135 140

Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met
145 150 155 160

Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu
165 170 175

Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile
180 185 190

Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp
195 200 205

Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu
210 215 220

Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser
225 230 235 240

Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr
245 250 255

Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe
260 265 270

Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
275 280 285

<210> 907

<211> 287

<212> PRT

<213> Neisseria meningitidis

<400> 907

Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile
1 5 10 15

Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala
20 25 30

Ser Ala Ala Ala Asp Asn Gly Ala Ala Lys Lys Glu Ile Val Phe Gly
35 40 45

Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu His Ile Gln Pro

50	55	60
Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp		
65	70	75 80
Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn		
	85	90 95
Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn		
	100	105 110
Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu		
	115	120 125
Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr		
	130	135 140
Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met		
145	150	155 160
Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu		
	165	170 175
Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile		
	180	185 190
Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp		
	195	200 205
Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu		
	210	215 220
Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser		
225	230	235 240
Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr		
	245	250 255
Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe		
	260	265 270
Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys		
	275	280 285
<210> 908		
<211> 287		
<212> PRT		
<213> Neisseria meningitidis		
<400> 908		
Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile		
1	5	10 15
Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala		
	20	25 30

Ser Ala Ala Ala Asp Asn Gly Ala Ala Lys Lys Glu Ile Val Phe Gly
 35 40 45

Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu His Ile Gln Pro
 50 55 60

Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp
 65 70 75 80

Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn
 85 90 95

Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn
 100 105 110

Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu
 115 120 125

Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr
 130 135 140

Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met
 145 150 155 160

Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu
 165 170 175

Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile
 180 185 190

Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp
 195 200 205

Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu
 210 215 220

Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser
 225 230 235 240

Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr
 245 250 255

Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe
 260 265 270

Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
 275 280 285

<210> 909

<211> 287

<212> PRT

<213> Neisseria meningitidis

<400> 909

Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile
 1 5 10 15

Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala
 20 25 30
 Ser Ala Ala Ala Asp Asn Gly Ala Glu Lys Lys Glu Ile Val Phe Gly
 35 40 45
 Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu Gln Ile Gln Ala
 50 55 60
 Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp
 65 70 75 80
 Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn
 85 90 95
 Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn
 100 105 110
 Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu
 115 120 125
 Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr
 130 135 140
 Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met
 145 150 155 160
 Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu
 165 170 175
 Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile
 180 185 190
 Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp
 195 200 205
 Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu
 210 215 220
 Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser
 225 230 235 240
 Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr
 245 250 255
 Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe
 260 265 270
 Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
 275 280 285

<210> 910
 <211> 287
 <212> PRT
 <213> Neisseria meningitidis

<400> 910

Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile
1 5 10 15

Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala
20 25 30

Ser Ala Ala Ala Asp Asn Gly Ala Glu Lys Lys Glu Ile Val Phe Gly
35 40 45

Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu Gln Ile Gln Ala
50 55 60

Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp
65 70 75 80

Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn
85 90 95

Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn
100 105 110

Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu
115 120 125

Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr
130 135 140

Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met
145 150 155 160

Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu
165 170 175

Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile
180 185 190

Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp
195 200 205

Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu
210 215 220

Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser
225 230 235 240

Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr
245 250 255

Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe
260 265 270

Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
275 280 285

<210> 911
 <211> 287
 <212> PRT
 <213> Neisseria meningitidis

<400> 911

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Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile
1      5      10      15

Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala
      20      25      30

Ser Ala Ala Ala Asp Asn Gly Ala Glu Lys Lys Glu Ile Val Phe Gly
      35      40      45

Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu Gln Ile Gln Ala
      50      55      60

Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp
65      70      75      80

Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn
      85      90      95

Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn
      100     105     110

Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu
      115     120     125

Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr
      130     135     140

Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met
145     150     155     160

Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu
      165     170     175

Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile
      180     185     190

Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp
      195     200     205

Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu
      210     215     220

Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser
225     230     235     240

Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr
      245     250     255

Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe
      260     265     270

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Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
 275 280 285

<210> 912
 <211> 287
 <212> PRT
 <213> Neisseria meningitidis

<400> 912
 Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile
 1 5 10 15

Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala
 20 25 30

Ser Ala Ala Ala Asp Asn Gly Ala Glu Lys Lys Glu Ile Val Phe Gly
 35 40 45

Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu Gln Ile Gln Ala
 50 55 60

Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp
 65 70 75 80

Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn
 85 90 95

Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn
 100 105 110

Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu
 115 120 125

Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr
 130 135 140

Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met
 145 150 155 160

Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu
 165 170 175

Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile
 180 185 190

Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp
 195 200 205

Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu
 210 215 220

Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser
 225 230 235 240

Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr

245										250										255																																			
Glu	Ala	Tyr	Asn	Ser	Asp	Ala	Phe	Lys	Ala	Tyr	Ala	His	Lys	Arg	Phe																																								
			260						265					270																																									
Glu	Gly	Tyr	Lys	Ser	Pro	Ala	Ala	Trp	Asn	Glu	Gly	Ala	Ala	Lys																																									
			275					280						285																																									
<210> 913																																																							
<211> 287																																																							
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<213> Neisseria meningitidis																																																							
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Met	Lys	Thr	Phe	Phe	Lys	Thr	Leu	Ser	Ala	Ala	Ala	Leu	Ala	Leu	Ile																																								
1				5					10					15																																									
Leu	Ala	Ala	Cys	Gly	Gly	Gln	Lys	Asp	Ser	Ala	Pro	Ala	Ala	Ser	Ala																																								
			20					25						30																																									
Ser	Ala	Ala	Ala	Asp	Asn	Gly	Ala	Ala	Lys	Lys	Glu	Ile	Val	Phe	Gly																																								
			35				40					45																																											
Thr	Thr	Val	Gly	Asp	Phe	Gly	Asp	Met	Val	Lys	Glu	Gln	Ile	Gln	Ala																																								
			50				55					60																																											
Glu	Leu	Glu	Lys	Lys	Gly	Tyr	Thr	Val	Lys	Leu	Val	Glu	Phe	Thr	Asp																																								
			65				70					75			80																																								
Tyr	Val	Arg	Pro	Asn	Leu	Ala	Leu	Ala	Glu	Gly	Glu	Leu	Asp	Ile	Asn																																								
				85					90					95																																									
Val	Phe	Gln	His	Lys	Pro	Tyr	Leu	Asp	Asp	Phe	Lys	Lys	Glu	His	Asn																																								
			100					105					110																																										
Leu	Asp	Ile	Thr	Glu	Val	Phe	Gln	Val	Pro	Thr	Ala	Pro	Leu	Gly	Leu																																								
			115					120					125																																										
Tyr	Pro	Gly	Lys	Leu	Lys	Ser	Leu	Glu	Glu	Val	Lys	Asp	Gly	Ser	Thr																																								
			130				135					140																																											
Val	Ser	Ala	Pro	Asn	Asp	Pro	Ser	Asn	Phe	Ala	Arg	Val	Leu	Val	Met																																								
			145				150					155			160																																								
Leu	Asp	Glu	Leu	Gly	Trp	Ile	Lys	Leu	Lys	Asp	Gly	Ile	Asn	Pro	Leu																																								
				165					170				175																																										
Thr	Ala	Ser	Lys	Ala	Asp	Ile	Ala	Glu	Asn	Leu	Lys	Asn	Ile	Lys	Ile																																								
				180					185				190																																										
Val	Glu	Leu	Glu	Ala	Ala	Gln	Leu	Pro	Arg	Ser	Arg	Ala	Asp	Val	Asp																																								
			195					200					205																																										
Phe	Ala	Val	Val	Asn	Gly	Asn	Tyr	Ala	Ile	Ser	Ser	Gly	Met	Lys	Leu																																								
			210				215					220																																											

Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser
225 230 235 240

Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr
245 250 255

Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe
260 265 270

Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
275 280 285

<210> 914

<211> 287

<212> PRT

<213> Neisseria meningitidis

<400> 914

Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile
1 5 10 15

Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala
20 25 30

Ser Ala Ala Ala Asp Asn Gly Ala Ala Lys Lys Glu Ile Val Phe Gly
35 40 45

Thr Thr Val Gly Asp Phe Gly Asp Leu Val Lys Glu Gln Ile Gln Pro
50 55 60

Glu Leu Glu Lys Lys Gly Tyr Thr Val Glu Leu Val Glu Phe Thr Asp
65 70 75 80

Tyr Val Arg Pro Asn Leu Ala Leu Gly Glu Gly Glu Leu Asp Ile Asn
85 90 95

Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn
100 105 110

Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu
115 120 125

Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr
130 135 140

Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met
145 150 155 160

Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu
165 170 175

Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile
180 185 190

Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp

195	200	205
Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu		
210	215	220
Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser		
225	230	235 240
Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr		
	245	250 255
Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe		
	260	265 270
Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys		
	275	280 285

<210> 915

<211> 287

<212> PRT

<213> Neisseria meningitidis

<400> 915

Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile		
1	5	10 15
Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala		
	20	25 30
Ser Ala Ala Ala Asp Asn Gly Ala Glu Lys Lys Glu Ile Val Phe Gly		
	35	40 45
Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu Gln Ile Gln Ala		
	50	55 60
Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp		
65	70	75 80
Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn		
	85	90 95
Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn		
	100	105 110
Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu		
	115	120 125
Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr		
	130	135 140
Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met		
145	150	155 160
Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu		
	165	170 175

Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile
180 185 190

Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp
195 200 205

Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu
210 215 220

Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser
225 230 235 240

Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr
245 250 255

Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe
260 265 270

Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
275 280 285

<210> 916
<211> 287
<212> PRT
<213> Neisseria meningitidis

<400> 916
Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile
1 5 10 15

Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala
20 25 30

Ser Ala Ala Ala Asp Asn Gly Ala Glu Lys Lys Glu Ile Val Phe Gly
35 40 45

Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu Gln Ile Gln Ala
50 55 60

Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp
65 70 75 80

Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn
85 90 95

Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn
100 105 110

Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu
115 120 125

Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr
130 135 140

Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met
 145 150 155 160
 Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu
 165 170 175
 Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile
 180 185 190
 Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp
 195 200 205
 Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu
 210 215 220
 Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser
 225 230 235 240
 Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr
 245 250 255
 Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe
 260 265 270
 Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
 275 280 285
 <210> 917
 <211> 287
 <212> PRT
 <213> Neisseria meningitidis
 <400> 917
 Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile
 1 5 10 15
 Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala
 20 25 30
 Ser Ala Ala Ala Asp Asn Gly Ala Glu Lys Lys Glu Ile Val Phe Gly
 35 40 45
 Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu Gln Ile Gln Ala
 50 55 60
 Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp
 65 70 75 80
 Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn
 85 90 95
 Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn
 100 105 110
 Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu
 115 120 125

Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr
 130 135 140

Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met
 145 150 155 160

Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu
 165 170 175

Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile
 180 185 190

Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp
 195 200 205

Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu
 210 215 220

Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser
 225 230 235 240

Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr
 245 250 255

Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe
 260 265 270

Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
 275 280 285

<210> 918
 <211> 287
 <212> PRT
 <213> Neisseria meningitidis

<400> 918
 Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile
 1 5 10 15

Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala
 20 25 30

Ser Ala Ala Ala Asp Asn Gly Ala Ala Lys Lys Glu Ile Val Phe Gly
 35 40 45

Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu Gln Ile Gln Pro
 50 55 60

Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp
 65 70 75 80

Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn
 85 90 95

Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn

100					105					110						
Leu	Asp	Ile	Thr	Glu	Val	Phe	Gln	Val	Pro	Thr	Ala	Pro	Leu	Gly	Leu	
115					120					125						
Tyr	Pro	Gly	Lys	Leu	Lys	Ser	Leu	Glu	Glu	Val	Lys	Asp	Gly	Ser	Thr	
130					135					140						
Val	Ser	Ala	Pro	Asn	Asp	Pro	Ser	Asn	Phe	Ala	Arg	Val	Leu	Val	Met	
145					150					155					160	
Leu	Asp	Glu	Leu	Gly	Trp	Ile	Lys	Leu	Lys	Asp	Gly	Ile	Asn	Pro	Leu	
165					170					175						
Thr	Ala	Ser	Lys	Ala	Asp	Ile	Ala	Glu	Asn	Leu	Lys	Asn	Ile	Lys	Ile	
180					185					190						
Val	Glu	Leu	Glu	Ala	Ala	Gln	Leu	Pro	Arg	Ser	Arg	Ala	Asp	Val	Asp	
195					200					205						
Phe	Ala	Val	Val	Asn	Gly	Asn	Tyr	Ala	Ile	Ser	Ser	Gly	Met	Lys	Leu	
210					215					220						
Thr	Glu	Ala	Leu	Phe	Gln	Glu	Pro	Ser	Phe	Ala	Tyr	Val	Asn	Trp	Ser	
225					230					235					240	
Ala	Val	Lys	Thr	Ala	Asp	Lys	Asp	Ser	Gln	Trp	Leu	Lys	Asp	Val	Thr	
245					250					255						
Glu	Ala	Tyr	Asn	Ser	Asp	Ala	Phe	Lys	Ala	Tyr	Ala	His	Lys	Arg	Phe	
260					265					270						
Glu	Gly	Tyr	Lys	Ser	Pro	Ala	Ala	Trp	Asn	Glu	Gly	Ala	Ala	Lys		
275					280					285						
<210> 919																
<211> 287																
<212> PRT																
<213> Neisseria meningitidis																
<400> 919																
Met	Lys	Thr	Phe	Phe	Lys	Thr	Leu	Ser	Ala	Ala	Ala	Leu	Ala	Leu	Ile	
1				5					10					15		
Leu	Ala	Ala	Cys	Gly	Gly	Gln	Lys	Asp	Ser	Ala	Pro	Ala	Ala	Ser	Ala	
20					25					30						
Ser	Ala	Ala	Ala	Asp	Asn	Gly	Ala	Ala	Lys	Lys	Glu	Ile	Val	Phe	Gly	
35					40					45						
Thr	Thr	Val	Gly	Asp	Phe	Gly	Asp	Met	Val	Lys	Glu	Gln	Ile	Gln	Pro	
50					55					60						
Glu	Leu	Glu	Lys	Lys	Gly	Tyr	Thr	Val	Lys	Leu	Val	Glu	Phe	Thr	Asp	
65					70					75					80	

Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn
 85 90 95

Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn
 100 105 110

Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu
 115 120 125

Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr
 130 135 140

Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met
 145 150 155 160

Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu
 165 170 175

Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile
 180 185 190

Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp
 195 200 205

Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu
 210 215 220

Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser
 225 230 235 240

Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr
 245 250 255

Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe
 260 265 270

Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
 275 280 285

<210> 920
 <211> 287
 <212> PRT
 <213> Neisseria meningitidis

<400> 920
 Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile
 1 5 10 15

Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala
 20 25 30

Ser Ala Ala Ala Asp Asn Gly Ala Ala Lys Lys Glu Ile Val Phe Gly
 35 40 45

Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu Gln Ile Gln Pro
 50 55 60

Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp
65 70 75 80

Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn
85 90 95

Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn
100 105 110

Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu
115 120 125

Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr
130 135 140

Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met
145 150 155 160

Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu
165 170 175

Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile
180 185 190

Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp
195 200 205

Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu
210 215 220

Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser
225 230 235 240

Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr
245 250 255

Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe
260 265 270

Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
275 280 285

<210> 921

<211> 288

<212> PRT

<213> Neisseria gonorrhoeae

<400> 921

Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile
1 5 10 15

Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala
20 25 30

Ala Ala Pro Ser Ala Asp Asn Gly Ala Ala Lys Lys Glu Ile Val Phe

35					40					45					
Gly	Thr	Thr	Val	Gly	Asp	Phe	Gly	Asp	Met	Val	Lys	Glu	Gln	Ile	Gln
50					55					60					
Ala	Glu	Leu	Glu	Lys	Lys	Gly	Tyr	Thr	Val	Lys	Leu	Val	Glu	Phe	Thr
65					70					75					80
Asp	Tyr	Val	Arg	Pro	Asn	Leu	Ala	Leu	Ala	Glu	Gly	Glu	Leu	Asp	Ile
				85					90					95	
Asn	Val	Phe	Gln	His	Lys	Pro	Tyr	Leu	Asp	Asp	Phe	Lys	Lys	Glu	His
		100						105					110		
Asn	Leu	Asp	Ile	Thr	Glu	Ala	Phe	Gln	Val	Pro	Thr	Ala	Pro	Leu	Gly
	115					120						125			
Leu	Tyr	Pro	Gly	Lys	Leu	Lys	Ser	Leu	Glu	Glu	Val	Lys	Asp	Gly	Ser
	130					135						140			
Thr	Val	Ser	Ala	Pro	Asn	Asp	Pro	Ser	Asn	Phe	Ala	Arg	Ala	Leu	Val
145					150					155					160
Met	Leu	Asn	Glu	Leu	Gly	Trp	Ile	Lys	Leu	Lys	Asp	Gly	Ile	Asn	Pro
			165						170					175	
Leu	Thr	Ala	Ser	Lys	Ala	Asp	Ile	Ala	Glu	Asn	Leu	Lys	Asn	Ile	Lys
		180						185					190		
Ile	Val	Glu	Leu	Glu	Ala	Ala	Gln	Leu	Pro	Arg	Ser	Arg	Ala	Asp	Val
	195						200					205			
Asp	Phe	Ala	Val	Val	Asn	Gly	Asn	Tyr	Ala	Ile	Ser	Ser	Gly	Met	Lys
	210					215					220				
Leu	Thr	Glu	Ala	Leu	Phe	Gln	Glu	Pro	Ser	Phe	Ala	Tyr	Val	Asn	Trp
225					230					235					240
Ser	Ala	Val	Lys	Thr	Ala	Asp	Lys	Asp	Ser	Gln	Trp	Leu	Lys	Asp	Val
			245						250					255	
Thr	Glu	Ala	Tyr	Asn	Ser	Asp	Ala	Phe	Lys	Ala	Tyr	Ala	His	Lys	Arg
		260						265					270		
Phe	Glu	Gly	Tyr	Lys	Tyr	Pro	Ala	Ala	Trp	Asn	Glu	Gly	Ala	Ala	Lys
	275					280					285				
<210>	922														
<211>	288														
<212>	PRT														
<213>	Neisseria gonorrhoeae														
<400>	922														
Met	Lys	Thr	Phe	Phe	Lys	Thr	Leu	Ser	Ala	Ala	Ala	Leu	Ala	Leu	Ile
1					5					10				15	

<400> 923

Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile
1 5 10 15
Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala
20 25 30
Ser Ala Ala Ala Asp Asn Gly Ala Ala Lys Lys Glu Ile Val Phe Gly
35 40 45
Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu Gln Ile Gln Pro
50 55 60
Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp
65 70 75 80
Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn
85 90 95
Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn
100 105 110
Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu
115 120 125
Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr
130 135 140
Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met
145 150 155 160
Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu
165 170 175
Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile
180 185 190
Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp
195 200 205
Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu
210 215 220
Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser
225 230 235 240
Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr
245 250 255
Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe
260 265 270
Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
275 280 285

<210> 924
 <211> 32
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Novel
 Sequence

 <400> 924
 cgcgatccg ctagcggaca cacttat ttc gg 32

 <210> 925
 <211> 27
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Novel
 Sequence

 <400> 925
 cccgctcgag ccagcggtag cctaatt 27

 <210> 926
 <211> 31
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Novel
 Sequence

 <400> 926
 gcggatccca tatgtttgat ttcggtttgg g 31

 <210> 927
 <211> 25
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Novel
 Sequence

 <400> 927
 cccgctcgag gacggcataa cggcg 25

 <210> 928
 <211> 31
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Novel
 Sequence

<400> 928
gcggatccca tatgtttgat ttcggtttgg g 31

<210> 929
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel
Sequence

<400> 929
cccgtcgcgag tgatttacgg acgcgca 27

<210> 930
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel
Sequence

<400> 930
gcggatccca tatgtgcgga ggtcaaaaag ac 32

<210> 931

<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel
Sequence

<400> 931
cccgtcgcgag tttggctgcg ccttc 25

<210> 932
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel
Sequence

<400> 932
ggaattccat atggccatgg tggaaggcgc acaacc 36

<210> 933
<211> 24
<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<400> 933
cgggatccat ggaaggcgca caac 24

<210> 934
<211> 26
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<400> 934
cccgcctcgag gactgtgcaa aaacgg 26

<210> 935
<211> 32
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<400> 935
cgcgatccc atatgaccgg tcaatctctg ca 32

<210> 936
<211> 26
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<400> 936
cccgcctcgag tgcgccgaac actttc 26

<210> 937
<211> 32
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<400> 937

cgcggatccg ctagcgcgct gctttttgtt cc 32

<210> 938

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel
Sequence

<400> 938

cccgtcgcgag tttcaaaata tatttgcgga 30

<210> 939

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel
Sequence

<400> 939

gcggatccca tatggctcaa ctgcttcgta c 31

<210> 940

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel
Sequence

<400> 940

cccgtcgcgag agcaggcttt ggcgc 25

<210> 941

<211> 32

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel
Sequence

<400> 941

cgcggatccc atatgccgaa ggaagtcgga aa 32

<210> 942

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel
Sequence

<400> 942

cccgcctcgag tttccgaggt tttcggg

27

<210> 943

<211> 32

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel
Sequence

<400> 943

gcggatccca tatggacaca aaagaaatcc tc

32

<210> 944

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel
Sequence

<400> 944

cccgcctcgag taatgggaaa ccttgtttt

29

<210> 945

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel
Sequence

<400> 945

gcggatccca tatggcggtc aacctctacg

30

<210> 946

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel
Sequence

<400> 946

cccgcgcgag ggaaacgact tcgcc

25

<210> 947

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel
Sequence

<400> 947

cgcggatccc atatggctct gctttccgcg c

31

<210> 948

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel
Sequence

<400> 948

cccgcgcgag aggggtgtgtg ataataag

28

<210> 949

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel
Sequence

<400> 949

ggaattccat atggccatgg gcgggacact gacag

35

<210> 950

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel
Sequence

<400> 950
 cgggatcctg cgggacactg acagg 25

<210> 951
 <211> 28
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Novel
 Sequence

<400> 951
 cccgctcgag aggttggcct tgtctatg 28

<210> 952
 <211> 35
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Novel
 Sequence

<400> 952
 ggaattccat atggccatgg ttgccggcct gttag 35

<210> 953
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Novel
 Sequence

<400> 953
 cgggatccat tgccggcctg ttcg 24

<210> 954
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Novel
 Sequence

<400> 954
 cccgctcgag aagcaggttg tacagc 26

<210> 955
 <211> 32
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Novel
 Sequence

 <400> 955
 gcggatccca tatgattttg ctgcatttgg at 32

 <210> 956
 <211> 29
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Novel
 Sequence

 <400> 956
 cccgctcgag tcttccaatt tctgaaagc 29

 <210> 957
 <211> 37
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Novel
 Sequence

 <400> 957
 ggaattccat atggccatgg tcgccagtgt ttttacc 37

 <210> 958
 <211> 27
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Novel
 Sequence

 <400> 958
 cgggatcctt cgccagtgtt tttaccg 27

 <210> 959
 <211> 28
 <212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel
Sequence

<400> 959

cccgcctcgag ggtgtttttg aagctgcc

28

<210> 960

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel
Sequence

<400> 960

ggaattccat atggccatgg tcggcgcggg tatg

34

<210> 961

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel
Sequence

<400> 961

cgggatcctt cggcgcgggt atg

23

<210> 962

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel
Sequence

<400> 962

cccgcctcgag cggcgagcga gagca

25

<210> 963

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel
Sequence

<400> 963
 ggaattccat atggccatgg tgattaaaat caaaaaaggt ct 42

<210> 964
 <211> 36
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Novel Sequence

<400> 964
 cgggatccat gattaaaatc aaaaaaggtc taaacc 36

<210> 965
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Novel Sequence

<400> 965
 cccgctcgag attatgatag cggccc 26

<210> 966
 <211> 33
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Novel Sequence

<400> 966

 cgcggatccc atatggatgt ttctgtttca gac 33

<210> 967
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Novel Sequence

<400> 967
 cccgctcgag tttaaaccga taggtaaacg 30

<210> 968
 <211> 37
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Novel Sequence

<400> 968
 ggaattccat atggccatgg tgatgccgga aatggtg 37

<210> 969
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Novel Sequence

<400> 969
 cgggatccat gatgccgga atggtg 26

<210> 970
 <211> 25
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Novel Sequence

<400> 970
 cccgctcgag tgtcagcgtg gcgca 25

<210> 971
 <211> 31
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<400> 971
 gcggatccca tatgtatcgc aaactgattg c 31

<210> 972
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Novel Sequence

<400> 972
 cccgctcgag atcgatggaa tagccg 26

<210> 973
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel
Sequence

<400> 973
gcggatccca tatgcagctg atcgactatt c

31

<210> 974
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel
Sequence

<400> 974
cccgcctcgag gacatcggcg cgtttt

26

<210> 975
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel
Sequence

<400> 975
cgggatccca gacctattct gtttatttta atc

33

<210> 976
<211> 30

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel
Sequence

<400> 976
cccgcctcgag gggttcgatt aaataaccat

30

<210> 977
<211> 38
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<400> 977

ggaattccat atggccatgg acggctgtac gttgatgt

38

<210> 978

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<400> 978

cgggatccaa cggctgtacg ttgatg

26

<210> 979

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<400> 979

cccgctcgag tttgtcagag gaattcgcg

29

<210> 980

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<400> 980

gcggatccca tatgaacggt ttggatgccc g

31

<210> 981

<211> 32

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 <210> 1020
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<210> 1026
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<210> 1033

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<210> 1035

<211> 28

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<210> 1036

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<210> 1037

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 <210> 1040
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 <210> 1041
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<210> 1043
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<400> 1043
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<210> 1044
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<210> 1045
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<210> 1046
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<210> 1047

<211> 39

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39

<210> 1048

<211> 33

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33

<210> 1049

<211> 33

<212> DNA

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33

<210> 1050

<211> 32

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<210> 1051
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<210> 1052
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<210> 1054
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33

<210> 1056

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25

<210> 1057

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31

<210> 1058

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33

<210> 1059

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<223> Description of Artificial Sequence: Novel
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36

<210> 1060

<211> 32

<212> DNA
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 <400> 1061
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 <210> 1062
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 <400> 1062
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 <210> 1063
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 <400> 1063
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 <210> 1064
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33

<210> 1065

<211> 33

<212> DNA

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33

<210> 1066

<211> 33

<212> DNA

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33

<210> 1067

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<210> 1068

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<223> Description of Artificial Sequence: Novel
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30

<210> 1069

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<223> Description of Artificial Sequence: Novel
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26

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<223> Description of Artificial Sequence: Novel
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31

<210> 1071

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<212> DNA

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28

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<400> 1072

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<210> 1073

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<400> 1073

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26

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<400> 1074
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Sequence

<400> 1075
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<210> 1076
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Sequence

<400> 1076
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<400> 1077
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<210> 1079

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<400> 1079

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26

<210> 1080

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<212> DNA

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<400> 1080

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33

<210> 1081

<211> 26

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<400> 1081

cccgcctcgag cggcggttta tagcgg

26

<210> 1082

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32

<210> 1083

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 <400> 1084
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 <210> 1085
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 <210> 1086
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<400> 1091
 cccgctcgag aatggcttcc gcaatatg 28

<210> 1092
 <211> 33
 <212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<400> 1092

gcggatccca tatgaccttt ttacaacggt tgc

33

<210> 1093

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<400> 1093

cccgcgcgag agattgttgt tgttttttcg

30

<210> 1094

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<400> 1094

gcggatccca tatgtctgtc tttcaaacgg c

31

<210> 1095

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<400> 1095

cccgcgcgag tttgtttttg caagacag

28

<210> 1096

<211> 228

<212> PRT

<213> Neisseria gonorrhoeae

<400> 1096

Met Tyr Ala Leu Thr Ala Ala Gln Gln Gln Lys Ala Leu Phe Arg Leu
1 5 10 15

Val Leu Phe His Ile Leu Ile Ile Ala Ala Ser Asn Tyr Leu Val Gln

20	25	30
Phe Pro Phe Arg Ile Phe Gly Ile His Thr Thr Trp Gly Ala Phe Ser		
35	40	45
Phe Pro Phe Ile Phe Leu Ala Thr Asp Leu Thr Val Arg Ile Phe Gly		
50	55	60
Ser His Leu Ala Arg Arg Ile Ile Phe Trp Val Met Phe Pro Ala Leu		
65	70	75
Leu Leu Ser Tyr Val Phe Ser Val Leu Phe His Asn Gly Ser Trp Thr		
85	90	95
Gly Leu Gly Ala Leu Ser Gln Phe Asn Thr Phe Val Gly Arg Ile Ala		
100	105	110
Leu Ala Ser Phe Ala Ala Tyr Ala Leu Gly Gln Ile Leu Asp Ile Phe		
115	120	125
Val Phe Asp Lys Leu Arg Arg Leu Lys Ala Trp Trp Ile Ala Pro Ala		
130	135	140
Ala Ser Thr Val Ile Gly Asn Ala Leu Asp Thr Leu Val Phe Phe Ala		
145	150	155
Val Ala Phe Tyr Ala Ser Ser Asp Glu Phe Met Ala Ala Asn Trp Gln		
165	170	175
Gly Ile Ala Phe Val Asp Tyr Leu Phe Lys Leu Thr Val Cys Thr Leu		
180	185	190
Phe Phe Leu Pro Ala Tyr Gly Val Ile Leu Asn Leu Leu Thr Lys Lys		
195	200	205
Leu Thr Ala Leu Gln Thr Lys Gln Ala Gln Asp Arg Pro Val Pro Ser		
210	215	220
Leu Gln Asn Pro		
225		
<210> 1097		
<211> 287		
<212> PRT		
<213> Neisseria meningitidis		
<400> 1097		
Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile		
1	5	10
Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala		
20	25	30
Ser Ala Ala Ala Asp Asn Gly Ala Glu Lys Lys Glu Ile Val Phe Gly		
35	40	45

Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu His Ile Gln Pro
 50 55 60
 Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp
 65 70 75 80
 Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn
 85 90 95
 Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn
 100 105 110
 Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu
 115 120 125
 Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr
 130 135 140
 Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met
 145 150 155 160
 Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu
 165 170 175
 Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile
 180 185 190
 Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp
 195 200 205
 Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu
 210 215 220
 Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser
 225 230 235 240
 Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr
 245 250 255
 Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe
 260 265 270
 Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
 275 280 285

<210> 1098
 <211> 36
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Novel Sequence

<400> 1098
 ggaattccat atggccatgg agacctattc tgttta

<210> 1099
 <211> 15
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic oligonucleotide primer

 <400> 1099
 cgcgatccc atatg 15

<210> 1100
 <211> 15
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic oligonucleotide primer

 <400> 1100
 cgcgatccg ctagc 15

<210> 1101
 <211> 17
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic oligonucleotide primer

 <400> 1101
 ccggaattct agctagc 17

<210> 1102
 <211> 10
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic oligonucleotide primer

 <400> 1102
 cccgctcgag 10

<210> 1103
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic oligonucleotide primer

<400> 1103
ggaattccat atggccatgg

20

<210> 1104
<211> 17
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide primer

<400> 1104
gatcagctag ccatatg

17

<210> 1105
<211> 167
<212> PRT
<213> Haemophilus influenzae

<400> 1105

Met Arg Gln Thr Ile Lys Tyr Glu Phe Trp Val Gly Leu Phe Leu Leu
1 5 10 15

Leu Gly Ile Gly Ala Leu Val Phe Leu Gly Leu Arg Val Ala Asn Val
20 25 30

Gln Gly Phe Ala Glu Thr Lys Ser Tyr Thr Val Thr Ala Thr Phe Asp
35 40 45

Asn Ile Gly Gly Leu Lys Val Arg Ala Pro Leu Lys Ile Gly Gly Val
50 55 60

Val Ile Gly Arg Val Ser Ala Ile Thr Leu Asp Glu Lys Ser Tyr Leu
65 70 75 80

Pro Lys Val Ser Ile Ala Ile Asn Gln Glu Tyr Asn Glu Ile Pro Glu
85 90 95

Asn Ser Ser Leu Ser Ile Lys Thr Ser Gly Leu Leu Gly Glu Gln Tyr
100 105 110

Ile Ala Leu Thr Met Gly Phe Asp Asp Gly Asp Thr Ala Met Leu Lys
115 120 125

Asn Gly Ser Gln Ile Gln Asp Thr Thr Ser Ala Met Val Leu Glu Asp
130 135 140

Leu Ile Gly Gln Phe Leu Tyr Gly Ser Lys Lys Ser Asp Gly Asn Glu
 145 150 155 160

Lys Ser Glu Ser Thr Glu Gln
 165

<210> 1106
 <211> 149
 <212> PRT
 <213> Neisseria gonorrhoeae

<220>
 <221> MISC_FEATURE
 <222> (149)..(149)
 <223> X = any amino acid

<400> 1106

Gly Ala Ala Ala Val Ala Phe Leu Ala Phe Arg Val Ala Gly Gly Ala
 1 5 10 15

Ala Phe Gly Gly Ser Asp Lys Thr Tyr Ala Val Tyr Ala Asp Phe Gly
 20 25 30

Asp Ile Gly Gly Leu Lys Val Asn Ala Pro Val Lys Ser Ala Gly Val
 35 40 45

Leu Val Gly Arg Val Gly Ala Ile Gly Leu Asp Pro Lys Ser Tyr Gln
 50 55 60

Ala Arg Val Arg Leu Asp Leu Asp Gly Lys Tyr Gln Phe Ser Ser Asp
 65 70 75 80

Val Ser Ala Gln Ile Leu Thr Ser Gly Leu Leu Gly Glu Gln Tyr Ile
 85 90 95

Gly Leu Gln Gln Gly Gly Asp Thr Glu Asn Leu Ala Ala Gly Asp Thr
 100 105 110

Ile Ser Val Thr Ser Ser Ala Met Val Leu Glu Asn Leu Ile Gly Lys
 115 120 125

Phe Met Thr Ser Phe Ala Glu Lys Asn Ala Glu Gly Gly Asn Ala Glu
 130 135 140

Lys Ala Ala Glu Xaa
145

<210> 1107
<211> 287
<212> PRT
<213> Neisseria meningitidis

<400> 1107

Met Lys Thr Phe Phe Lys Thr Leu Ser Ala Ala Ala Leu Ala Leu Ile
1 5 10 15

Leu Ala Ala Cys Gly Gly Gln Lys Asp Ser Ala Pro Ala Ala Ser Ala
20 25 30

Ser Ala Ala Ala Asp Asn Gly Ala Glu Lys Lys Glu Ile Val Phe Gly
35 40 45

Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu His Ile Gln Pro
50 55 60

Glu Leu Glu Lys Lys Gly Tyr Thr Val Glu Leu Val Glu Phe Thr Asp
65 70 75 80

Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn
85 90 95

Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn
100 105 110

Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu
115 120 125

Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr
130 135 140

Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met
145 150 155 160

Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu
165 170 175

Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile
180 185 190

Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp
195 200 205

Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu
210 215 220

Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser
225 230 235 240

Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr
245 250 255

Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe
260 265 270

Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
275 280 285

<210> 1108
<211> 170
<212> PRT
<213> Bacillus subtilis

<400> 1108

Ile Ala Val Val Arg Leu Lys Ile Gly Ser Pro Val Phe Phe Lys Gln
1 5 10 15

Val Arg Pro Gly Leu His Gly Lys Pro Phe Thr Leu Tyr Lys Phe Arg
20 25 30

Thr Met Thr Asp Glu Arg Asp Ser Lys Gly Asn Leu Leu Pro Asp Glu
35 40 45

Val Arg Leu Thr Lys Thr Gly Arg Leu Ile Arg Lys Leu Ser Ile Asp
50 55 60

Glu Leu Pro Gln Leu Leu Asn Val Leu Lys Gly Asp Leu Ser Leu Val
65 70 75 80

Gly Pro Arg Pro Leu Leu Met Asp Tyr Leu Pro Leu Tyr Thr Glu Lys

85

90

95

Gln Ala Arg Arg His Glu Val Lys Pro Gly Ile Thr Gly Trp Ala Gln
 100 105 110

Ile Asn Gly Arg Asn Ala Ile Ser Trp Glu Lys Lys Phe Glu Leu Asp
 115 120 125

Val Trp Tyr Val Asp Asn Trp Ser Phe Phe Leu Asp Leu Lys Ile Leu
 130 135 140

Cys Leu Thr Val Arg Lys Val Leu Val Ser Glu Gly Ile Gln Gln Thr
 145 150 155 160

Asn His Val Thr Ala Glu Arg Phe Thr Gly
 165 170

<210> 1109

<211> 170

<212> PRT

<213> Bacillus subtilis

<400> 1109

Ile Ala Val Val Arg Leu Lys Ile Gly Ser Pro Val Phe Phe Lys Gln
 1 5 10 15

Val Arg Pro Gly Leu His Gly Lys Pro Phe Thr Leu Tyr Lys Phe Arg
 20 25 30

Thr Met Thr Asp Glu Arg Asp Ser Lys Gly Asn Leu Leu Pro Asp Glu
 35 40 45

Val Arg Leu Thr Lys Thr Gly Arg Leu Ile Arg Lys Leu Ser Ile Asp
 50 55 60

Glu Leu Pro Gln Leu Leu Asn Val Leu Lys Gly Asp Leu Ser Leu Val
 65 70 75 80

Gly Pro Arg Pro Leu Leu Met Asp Tyr Leu Pro Leu Tyr Thr Glu Lys
 85 90 95

Gln Ala Arg Arg His Glu Val Lys Pro Gly Ile Thr Gly Trp Ala Gln
 100 105 110

Ile Asn Gly Arg Asn Ala Ile Ser Trp Glu Lys Lys Phe Glu Leu Asp
 115 120 125

Val Trp Tyr Val Asp Asn Trp Ser Phe Phe Leu Asp Leu Lys Ile Leu
 130 135 140

Cys Leu Thr Val Arg Lys Val Leu Val Ser Glu Gly Ile Gln Gln Thr
 145 150 155 160

Asn His Val Thr Ala Glu Arg Phe Thr Gly
 165 170

<210> 1110
 <211> 195
 <212> PRT
 <213> Bacillus subtilis

<400> 1110

Leu Lys Arg Leu Phe Asp Leu Thr Ala Ala Ile Phe Leu Leu Cys Cys
 1 5 10 15

Thr Ser Val Ile Ile Leu Phe Thr Ile Ala Val Val Arg Leu Lys Ile
 20 25 30

Gly Ser Pro Val Phe Phe Lys Gln Val Arg Pro Gly Leu His Gly Lys
 35 40 45

Pro Phe Thr Leu Tyr Lys Phe Arg Thr Met Thr Asp Glu Arg Asp Ser
 50 55 60

Lys Gly Asn Leu Leu Pro Asp Glu Val Arg Leu Thr Lys Thr Gly Arg
 65 70 75 80

Leu Ile Arg Lys Leu Ser Ile Asp Glu Leu Pro Gln Leu Leu Asn Val
 85 90 95

Leu Lys Gly Asp Leu Ser Leu Val Gly Pro Arg Pro Leu Leu Met Asp
 100 105 110

Tyr Leu Pro Leu Tyr Thr Glu Lys Gln Ala Arg Arg His Glu Val Lys
 115 120 125

Pro Gly Ile Thr Gly Trp Ala Gln Ile Asn Gly Arg Asn Ala Ile Ser

130 135 140
 Trp Glu Lys Lys Phe Glu Leu Asp Val Trp Tyr Val Asp Asn Trp Ser
 145 150 155 160
 Phe Phe Leu Asp Leu Lys Ile Leu Cys Leu Thr Val Arg Lys Val Leu
 165 170 175
 Val Ser Glu Gly Ile Gln Gln Thr Asn His Val Thr Ala Glu Arg Phe
 180 185 190
 Thr Gly Ser
 195
 <210> 1111
 <211> 299
 <212> PRT
 <213> Haemophilus influenzae
 <400> 1111
 Met Asn Asp Glu Gln Gln Asn Ser Asn Gln Ser Glu Asn Thr Lys Lys
 1 5 10 15
 Pro Phe Phe Gln Ser Leu Phe Gly Arg Phe Phe Gln Gly Glu Leu Lys
 20 25 30
 Asn Arg Glu Glu Leu Val Glu Val Ile Arg Asp Ser Glu Gln Asn Asp
 35 40 45
 Leu Ile Asp Gln Asn Thr Arg Glu Met Ile Glu Gly Val Met Glu Ile
 50 55 60
 Ala Glu Leu Arg Val Arg Asp Ile Met Ile Pro Arg Ser Gln Ile Ile
 65 70 75 80
 Phe Ile Glu Asp Gln Gln Asp Leu Asn Thr Cys Leu Asn Thr Ile Ile
 85 90 95
 Glu Ser Ala His Ser Arg Phe Pro Val Ile Ala Asp Ala Asp Asp Arg
 100 105 110
 Asp Asn Ile Val Gly Ile Leu His Ala Lys Asp Leu Leu Lys Phe Leu
 115 120 125

Arg Glu Asp Ala Glu Val Phe Asp Leu Ser Ser Leu Leu Arg Pro Val
130 135 140

Val Ile Val Pro Glu Ser Lys Arg Val Asp Arg Met Leu Lys Asp Phe
145 150 155 160

Arg Ser Glu Arg Phe His Met Ala Ile Val Val Asp Glu Phe Gly Ala
165 170 175

Val Ser Gly Leu Val Thr Ile Glu Asp Ile Leu Glu Gln Ile Val Gly
180 185 190

Asp Ile Glu Asp Glu Phe Asp Glu Glu Glu Ile Ala Asp Ile Arg Gln
195 200 205

Leu Ser Arg His Thr Tyr Ala Val Arg Ala Leu Thr Asp Ile Asp Asp
210 215 220

Phe Asn Ala Gln Phe Asn Thr Asp Phe Asp Asp Glu Glu Val Asp Thr
225 230 235 240

Ile Gly Gly Leu Ile Met Gln Thr Phe Gly Tyr Leu Pro Lys Arg Gly
245 250 255

Glu Glu Ile Ile Leu Lys Asn Leu Gln Phe Lys Val Thr Ser Ala Asp
260 265 270

Ser Arg Arg Leu Ile Gln Leu Arg Val Thr Val Pro Asp Glu His Leu
275 280 285

Ala Glu Met Asn Asn Val Asp Glu Lys Ser Glu
290 295

<210> 1112
<211> 229
<212> PRT
<213> Escherichia coli

<400> 1112

Asp Thr Ile Ser Asn Lys Lys Gly Phe Phe Ser Leu Leu Leu Ser Gln
1 5 10 15

Leu Phe His Gly Glu Pro Lys Asn Arg Asp Glu Leu Leu Ala Leu Ile

20

25

30

Arg Asp Ser Gly Gln Asn Asp Leu Ile Asp Glu Asp Thr Arg Asp Met
35 40 45

Leu Glu Gly Val Met Asp Ile Ala Asp Gln Arg Val Arg Asp Ile Met
50 55 60

Ile Pro Arg Ser Gln Met Ile Thr Leu Lys Arg Asn Gln Thr Leu Asp
65 70 75 80

Glu Cys Leu Asp Val Ile Ile Glu Ser Ala His Ser Arg Phe Pro Val
85 90 95

Ile Ser Glu Asp Lys Asp His Ile Glu Gly Ile Leu Met Ala Lys Asp
100 105 110

Leu Leu Pro Phe Met Arg Ser Asp Ala Glu Ala Phe Ser Met Asp Lys
115 120 125

Val Leu Arg Gln Ala Val Val Val Pro Glu Ser Lys Arg Val Asp Arg
130 135 140

Met Leu Lys Glu Phe Arg Ser Gln Arg Tyr His Met Ala Ile Val Ile
145 150 155 160

Asp Glu Phe Gly Gly Val Ser Gly Leu Val Thr Ile Glu Asp Ile Leu
165 170 175

Glu Leu Ile Val Gly Glu Ile Glu Asp Glu Tyr Asp Glu Glu Asp Asp
180 185 190

Ile Asp Phe Arg Gln Leu Ser Arg His Thr Trp Thr Val Arg Ala Leu
195 200 205

Ala Ser Ile Glu Asp Phe Asn Glu Ala Phe Gly Thr His Phe Ser Asp
210 215 220

Glu Glu Val Asp Thr
225

<210> 1113
<211> 347

<212> PRT

<213> Haemophilus influenzae

<400> 1113

Met Lys Lys Phe Leu Ile Ala Ile Leu Leu Leu Ile Leu Ile Leu Ala
1 5 10 15

Gly Val Ala Ser Phe Ser Tyr Tyr Lys Met Thr Glu Phe Val Lys Thr
20 25 30

Pro Val Asn Val Gln Ala Asp Glu Leu Leu Thr Ile Glu Arg Gly Thr
35 40 45

Thr Ser Ser Lys Leu Ala Thr Leu Phe Glu Gln Glu Lys Leu Ile Ala
50 55 60

Asp Gly Lys Leu Leu Pro Tyr Leu Leu Lys Leu Lys Pro Glu Leu Asn
65 70 75 80

Lys Ile Lys Ala Gly Thr Tyr Ser Leu Glu Asn Val Lys Thr Val Gln
85 90 95

Asp Leu Leu Asp Leu Leu Asn Ser Gly Lys Glu Val Gln Phe Asn Val
100 105 110

Lys Trp Ile Glu Gly Lys Thr Phe Lys Asp Trp Arg Lys Asp Leu Glu
115 120 125

Asn Ala Pro His Leu Val Gln Thr Leu Lys Asp Lys Ser Asn Glu Glu
130 135 140

Ile Phe Ala Leu Leu Asp Leu Pro Asp Ile Gly Gln Asn Leu Glu Leu
145 150 155 160

Lys Asn Val Glu Gly Trp Leu Tyr Pro Asp Thr Tyr Asn Tyr Thr Pro
165 170 175

Lys Ser Thr Asp Leu Glu Leu Leu Lys Arg Ser Ala Glu Arg Met Lys
180 185 190

Lys Ala Leu Asn Lys Ala Trp Asn Glu Arg Asp Glu Asp Leu Pro Leu
195 200 205

Ala Asn Pro Tyr Glu Met Leu Ile Leu Ala Ser Ile Val Glu Lys Glu
 210 215 220

Thr Gly Ile Ala Asn Glu Arg Ala Lys Val Ala Ser Val Phe Ile Asn
 225 230 235 240

Arg Leu Lys Ala Lys Met Lys Leu Gln Thr Asp Pro Thr Val Ile Tyr
 245 250 255

Gly Met Gly Glu Asn Tyr Asn Gly Asn Ile Arg Lys Lys Asp Leu Glu
 260 265 270

Thr Lys Thr Pro Tyr Asn Thr Tyr Val Ile Asp Gly Leu Pro Pro Thr
 275 280 285

Pro Ile Ala Met Pro Ser Glu Ser Ser Leu Gln Ala Val Ala Asn Pro
 290 295 300

Glu Lys Thr Asp Phe Tyr Tyr Phe Val Ala Asp Gly Ser Gly Gly His
 305 310 315 320

Lys Phe Thr Arg Asn Leu Asn Glu His Asn Lys Ala Val Gln Glu Tyr
 325 330 335

Leu Arg Trp Tyr Arg Ser Gln Lys Asn Ala Lys
 340 345

<210> 1114
 <211> 340
 <212> PRT
 <213> Escherichia coli

<400> 1114

Met Lys Lys Val Leu Leu Ile Ile Leu Leu Leu Leu Val Val Leu Gly
 1 5 10 15

Ile Ala Ala Gly Val Gly Val Trp Lys Val Arg His Leu Ala Asp Ser
 20 25 30

Lys Leu Leu Ile Lys Glu Glu Thr Ile Phe Thr Leu Lys Pro Gly Thr
 35 40 45

Gly Arg Leu Ala Leu Gly Glu Gln Leu Tyr Ala Asp Lys Ile Ile Asn
 50 55 60

Arg Pro Arg Val Phe Gln Trp Leu Leu Arg Ile Glu Pro Asp Leu Ser
65 70 75 80

His Phe Lys Ala Gly Thr Tyr Arg Phe Thr Pro Gln Met Thr Val Arg
85 90 95

Glu Met Leu Lys Leu Leu Glu Ser Gly Lys Glu Ala Gln Phe Pro Leu
100 105 110

Arg Leu Val Glu Gly Met Arg Leu Ser Asp Tyr Leu Lys Gln Leu Arg
115 120 125

Glu Ala Pro Tyr Ile Lys His Thr Leu Ser Asp Asp Lys Tyr Ala Thr
130 135 140

Val Ala Gln Ala Leu Glu Leu Glu Asn Pro Glu Trp Ile Glu Gly Trp
145 150 155 160

Phe Trp Pro Asp Thr Trp Met Tyr Thr Ala Asn Thr Thr Asp Val Ala
165 170 175

Leu Leu Lys Arg Ala His Lys Lys Met Val Lys Ala Val Asp Ser Ala
180 185 190

Trp Glu Gly Arg Ala Asp Gly Leu Pro Tyr Lys Asp Lys Asn Gln Leu
195 200 205

Val Thr Met Ala Ser Ile Ile Glu Lys Glu Thr Ala Val Ala Ser Glu
210 215 220

Arg Asp Lys Val Ala Ser Val Phe Ile Asn Arg Leu Arg Ile Gly Met
225 230 235 240

Arg Leu Gln Thr Asp Pro Thr Val Ile Tyr Gly Met Gly Glu Arg Tyr
245 250 255

Asn Gly Lys Leu Ser Arg Ala Asp Leu Glu Thr Pro Thr Ala Tyr Asn
260 265 270

Thr Tyr Thr Ile Thr Gly Leu Pro Pro Gly Ala Ile Ala Thr Pro Gly
275 280 285

Ala Asp Ser Leu Lys Ala Ala Ala His Pro Ala Lys Thr Pro Tyr Leu
 290 295 300

Tyr Phe Val Ala Asp Gly Lys Gly Gly His Thr Phe Asn Thr Asn Leu
 305 310 315 320

Ala Ser His Asn Lys Ser Val Gln Asp Tyr Leu Lys Val Leu Lys Glu
 325 330 335

Lys Asn Ala Gln
 340

<210> 1115

<211> 576

<212> PRT

<213> Pseudomonas aeruginosa

<400> 1115

Met Asn Lys Ser Leu Ala Leu Leu Thr Val Thr Leu Leu Leu Gly Gly
 1 5 10 15

Cys Gln Ser Leu Ile His Lys Thr Pro Asp Gly Thr Pro Pro Val Glu
 20 25 30

Asp Thr Ala Val Glu Thr Lys Ala Lys Pro Glu Lys Tyr Gly Ser Phe
 35 40 45

Ser Glu Asp Ser Leu Tyr Ser Leu Leu Val Ala Glu Leu Ala Gly Gln
 50 55 60

Arg Asn Arg Phe Asp Ile Ala Leu Ser Asn Tyr Val Val Gln Ala Gln
 65 70 75 80

Lys Thr Arg Asp Pro Gly Val Ser Glu Arg Ala Phe Arg Ile Ala Glu
 85 90 95

Tyr Leu Gly Ala Asp Gln Glu Ala Leu Asp Thr Ser Leu Leu Trp Ala
 100 105 110

Arg Ser Ala Pro Asp Asn Leu Asp Ala Gln Arg Ala Ala Ala Ile Gln
 115 120 125

Leu Ala Arg Ala Gly Arg Tyr Glu Glu Ser Met Val Tyr Met Glu Lys

Ala Gly Arg Val Asp Glu Ala Ala Gln Arg Leu Asp Lys Ala Arg Ser
 370 375 380

Glu Gln Pro Asp Tyr Ala Ile Gln Leu Tyr Leu Ile Glu Ala Glu Ala
 385 390 395 400

Leu Ser Asn Asn Asp Gln Gln Glu Lys Ala Trp Gln Ala Ile Gln Glu
 405 410 415

Gly Leu Lys Gln Tyr Pro Glu Asp Leu Asn Leu Leu Tyr Thr Arg Ser
 420 425 430

Met Leu Ala Glu Lys Arg Asn Asp Leu Ala Gln Met Glu Lys Asp Leu
 435 440 445

Arg Phe Val Ile Ala Arg Glu Pro Asp Asn Ala Met Ala Leu Asn Ala
 450 455 460

Leu Gly Tyr Thr Leu Ala Asp Arg Thr Thr Arg Tyr Gly Glu Ala Arg
 465 470 475 480

Glu Leu Ile Leu Lys Ala His Lys Leu Asn Pro Asp Asp Pro Ala Ile
 485 490 495

Leu Asp Ser Met Gly Trp Ile Asn Tyr Arg Gln Gly Lys Leu Ala Asp
 500 505 510

Ala Glu Arg Tyr Leu Arg Gln Ala Leu Gln Arg Tyr Pro Asp His Glu
 515 520 525

Val Ala Ala His Leu Gly Glu Val Leu Trp Ala Gln Gly Arg Gln Gly
 530 535 540

Asp Ala Arg Ala Ile Trp Arg Glu Tyr Leu Asp Lys Gln Pro Asp Ser
 545 550 555 560

Asp Val Leu Arg Arg Thr Ile Lys Arg Leu Thr Gly Ala Glu Thr Pro
 565 570 575

<210> 1116
 <211> 545
 <212> PRT

<213> Aquifex aeolicus

<400> 1116

Met Arg Lys Trp Ile Val Ala Phe Ser Leu Phe Ser Ile Ser Phe Ser
1 5 10 15

Asn Pro Tyr Phe Asp Ala Leu Met Cys Ala Tyr Leu Ser Asp Lys Pro
20 25 30

Lys Ile Ala Gln Asn Tyr Cys Leu Ser Ala Leu Glu Lys Ile Pro Ser
35 40 45

Pro Glu Leu Tyr Lys Asp Thr Ile Lys Val Leu Leu Arg Asn Lys Glu
50 55 60

Tyr Glu Lys Ala Lys Glu Leu Ala Lys Glu Phe Leu Glu Thr Tyr Pro
65 70 75 80

Asp Glu Pro Gln Ala Tyr Ile Tyr Leu Tyr Thr Ile Tyr Lys Phe Leu
85 90 95

Lys Glu Asp Lys Lys Ala Phe Glu Val Ile Lys Glu Ala Tyr Lys Ser
100 105 110

Phe Pro Phe Asn Glu Asn Val Val Leu Phe Leu Ala Asn Glu Tyr Ile
115 120 125

Asn Lys Gly Lys Leu Arg Glu Ala Glu Lys Val Leu Leu Glu Tyr Met
130 135 140

Glu Thr Asp Pro Asp Asn Pro Leu Pro Tyr Tyr Leu Leu Gly Arg Ile
145 150 155 160

Tyr Leu Ala Lys Gly Asp Ile Gln Lys Gly Met Glu Tyr Phe Leu Lys
165 170 175

Ala Leu Glu Lys Lys Lys Tyr Tyr Ala Pro Ala Val Leu Ser Leu Gly
180 185 190

Asn Leu Tyr Leu Gln Glu Lys Lys Phe Lys Glu Ala Glu Glu Leu Tyr
195 200 205

Lys Ser Val Leu Glu Lys Tyr Pro Asn Ser Pro Lys Ile Leu Glu Lys

210	215	220
Leu Ala Lys Leu Tyr Thr Ala Ser Gly Arg Ile Glu Glu Ala Ile Lys		
225	230	235 240
Ile Tyr Glu Lys Leu Ile Asn Leu Lys Pro Arg Asn Val Asn Tyr Lys		
245	250	255
Thr Glu Tyr Ala Leu Leu Leu Leu Ser Thr Gly Glu Phe Asp Lys Ala		
260	265	270
Lys Lys Ile Leu Glu Glu Leu Tyr Tyr Val Asn Pro Ser Asn Pro Asn		
275	280	285
Val Ala Phe Ala Tyr Ala Leu Thr Leu Glu Ala Thr Gly Glu Leu Lys		
290	295	300
Lys Ala Lys Glu Ile Tyr Glu Asn Leu Leu Asn Arg Phe Pro Glu Asn		
305	310	315 320
Ile Lys Val Ile Glu Arg Leu Ile Gly Ile Tyr Leu Asp Leu Gly Asn		
325	330	335
Tyr Glu Asp Ala Lys Arg Leu Ile Glu Lys Ala Lys Val Leu Ala Pro		
340	345	350
Asp Lys Lys Glu Ile Leu Phe Leu Glu Ala Asp Tyr Tyr Ser Lys Thr		
355	360	365
Lys Gln Tyr Asp Lys Ala Leu Glu Ile Leu Lys Lys Leu Glu Lys Asp		
370	375	380
Tyr Pro Asn Asp Ser Arg Val Tyr Phe Met Glu Ala Ile Val Tyr Asp		
385	390	395 400
Asn Leu Gly Asp Ile Lys Asn Ala Glu Lys Ala Leu Arg Lys Ala Ile		
405	410	415
Glu Leu Asp Pro Glu Asn Pro Asp Tyr Tyr Asn Tyr Leu Gly Tyr Ser		
420	425	430
Leu Leu Leu Trp Tyr Gly Lys Glu Arg Val Glu Glu Ala Glu Glu Leu		
435	440	445

Ile Lys Lys Ala Leu Glu Lys Asp Pro Glu Asn Pro Ala Tyr Ile Asp
 450 455 460

Ser Met Gly Trp Val Tyr Tyr Leu Lys Gly Asp Tyr Glu Arg Ala Met
 465 470 475 480

Gln Tyr Leu Leu Lys Ala Leu Arg Glu Ala Tyr Asp Asp Pro Val Val
 485 490 495

Asn Glu His Val Gly Asp Val Leu Leu Lys Met Gly Tyr Lys Glu Glu
 500 505 510

Ala Arg Asn Tyr Tyr Glu Arg Ala Leu Lys Leu Leu Glu Glu Gly Lys
 515 520 525

Gln Gly Glu Arg Gly Gln Lys Glu Arg Leu Leu Lys Lys Leu Glu Asn
 530 535 540

Leu
 545

<210> 1117
 <211> 560
 <212> PRT
 <213> Pseudomonas putida

<400> 1117

Met Asp Ile Lys Arg Thr Ile Leu Ile Ala Ala Leu Ala Val Val Ser
 1 5 10 15

Tyr Val Met Val Leu Lys Trp Asn Asp Asp Tyr Gly Gln Ala Ala Leu
 20 25 30

Pro Thr Gln Asn Thr Ala Ala Ser Thr Val Ala Pro Gly Leu Pro Asp
 35 40 45

Gly Val Pro Ala Gly Asn Asn Gly Ala Ser Ala Asp Val Pro Ser Ala
 50 55 60

Asn Ala Glu Ser Ser Pro Ala Glu Leu Ala Pro Val Ala Leu Ser Lys
 65 70 75 80

Asp Leu Ile Arg Val Lys Thr Asp Val Leu Glu Leu Ala Ile Asp Pro
85 90 95

Val Gly Gly Asp Ile Val Gln Leu Asn Leu Pro Lys Tyr Pro Arg Arg
100 105 110

Gln Asp His Pro Asn Ile Pro Phe Gln Leu Phe Asp Asn Gly Gly Glu
115 120 125

Arg Val Tyr Leu Ala Gln Ser Gly Leu Thr Gly Thr Asp Gly Pro Asp
130 135 140

Ala Arg Ala Ser Gly Arg Pro Leu Tyr Ala Ala Glu Gln Lys Ser Tyr
145 150 155 160

Gln Leu Ala Asp Gly Gln Glu Gln Leu Val Val Asp Leu Lys Phe Ser
165 170 175

Asp Asn Gly Val Asn Tyr Ile Lys Arg Phe Ser Phe Lys Arg Gly Glu
180 185 190

Tyr Asp Leu Asn Val Ser Tyr Leu Ile Asp Asn Gln Ser Gly Gln Ala
195 200 205

Trp Asn Gly Asn Met Phe Ala Gln Leu Lys Arg Asp Ala Ser Gly Asp
210 215 220

Pro Ser Ser Ser Thr Ala Thr Gly Thr Ala Thr Tyr Leu Gly Ala Ala
225 230 235 240

Leu Trp Thr Ala Ser Glu Pro Tyr Lys Lys Val Ser Met Lys Asp Ile
245 250 255

Asp Lys Gly Ser Leu Lys Glu Asn Val Ser Gly Gly Trp Val Ala Trp
260 265 270

Leu Gln His Tyr Phe Val Thr Ala Trp Ile Pro Ala Lys Ser Asp Asn
275 280 285

Asn Val Val Gln Thr Arg Lys Asp Ser Gln Gly Asn Tyr Ile Ile Gly
290 295 300

Tyr Thr Gly Pro Val Ile Ser Val Pro Ala Gly Gly Lys Val Glu Thr

305		310		315		320
Ser Ala Leu Leu Tyr Ala Gly Pro Lys Ile Gln Ser Lys Leu Lys Glu						
	325			330		335
Leu Ser Pro Gly Leu Glu Leu Thr Val Asp Tyr Gly Phe Leu Trp Phe						
	340			345		350
Ile Ala Gln Pro Ile Phe Trp Leu Leu Gln His Ile His Ser Leu Leu						
	355			360		365
Gly Asn Trp Gly Trp Ser Ile Ile Val Leu Thr Met Leu Ile Lys Gly						
	370			375		380
Leu Phe Phe Pro Leu Ser Ala Ala Ser Tyr Arg Ser Met Ala Arg Met						
385		390		395		400
Arg Ala Val Ala Pro Lys Leu Ala Ala Leu Lys Glu Arg Phe Gly Asp						
	405			410		415
Asp Arg Gln Lys Met Ser Gln Ala Met Met Glu Leu Tyr Lys Lys Glu						
	420			425		430
Lys Ile Asn Pro Leu Gly Gly Cys Leu Pro Ile Leu Val Gln Met Pro						
	435			440		445
Val Phe Leu Ala Leu Tyr Trp Val Leu Leu Glu Ser Val Glu Met Arg						
	450			455		460
Gln Ala Pro Trp Ile Leu Trp Ile Thr Asp Leu Ser Ile Lys Asp Pro						
465		470		475		480
Phe Phe Ile Leu Pro Ile Ile Met Gly Ala Thr Met Phe Ile Gln Gln						
	485			490		495
Arg Leu Asn Pro Thr Pro Pro Asp Pro Met Gln Ala Lys Val Met Lys						
	500			505		510
Met Met Pro Ile Ile Phe Thr Phe Phe Phe Leu Trp Phe Pro Ala Gly						
	515			520		525
Leu Val Leu Tyr Trp Val Val Asn Asn Cys Leu Ser Ile Ser Gln Gln						
	530			535		540

Trp Tyr Ile Thr Arg Arg Ile Glu Ala Ala Thr Lys Lys Ala Ala Ala
 545 550 555 560

<210> 1118

<211> 171

<212> PRT

<213> Escherichia coli

<400> 1118

Met Phe Asp Ile Gly Phe Ser Glu Leu Leu Leu Val Phe Ile Ile Gly
 1 5 10 15

Leu Val Val Leu Gly Pro Gln Arg Leu Pro Val Ala Val Lys Thr Val
 20 25 30

Ala Gly Trp Ile Arg Ala Leu Arg Ser Leu Ala Thr Thr Val Gln Asn
 35 40 45

Glu Leu Thr Gln Glu Leu Lys Leu Gln Glu Phe Gln Asp Ser Leu Lys
 50 55 60

Lys Val Glu Lys Ala Ser Leu Thr Asn Leu Thr Pro Glu Leu Lys Ala
 65 70 75 80

Ser Met Asp Glu Leu Arg Gln Ala Ala Glu Ser Met Lys Arg Ser Tyr
 85 90 95

Val Ala Asn Asp Pro Glu Lys Ala Ser Asp Glu Ala His Thr Ile His
 100 105 110

Asn Pro Val Val Lys Asp Asn Glu Thr Ala His Glu Gly Val Thr Pro
 115 120 125

Ala Ala Ala Gln Thr Gln Ala Ser Ser Pro Glu Gln Lys Pro Glu Thr
 130 135 140

Thr Pro Glu Pro Val Val Lys Pro Ala Ala Asp Ala Glu Pro Lys Thr
 145 150 155 160

Ala Ala Pro Ser Pro Ser Ser Ser Asp Lys Pro
 165 170

<210> 1119
 <211> 264
 <212> PRT
 <213> Haemophilus influenzae

<400> 1119

Met Phe Thr Phe Ile Leu Leu Cys Leu Leu Val Gly Ala Leu Ala Gly
 1 5 10 15

Phe Leu Ala Gly Leu Phe Gly Ile Gly Gly Gly Leu Val Ile Val Pro
 20 25 30

Thr Leu Val Tyr Leu Leu Pro Ile Val Asp Val Pro Glu Ser Leu Leu
 35 40 45

Met Ser Thr Ala Leu Gly Thr Ser Phe Ala Thr Ile Val Ile Thr Gly
 50 55 60

Ile Gly Ser Ala Gln Arg His His Lys Leu Gly Asn Ile Val Trp Gln
 65 70 75 80

Ala Val Arg Ile Leu Ala Pro Val Ile Met Leu Ser Val Phe Ile Cys
 85 90 95

Gly Leu Phe Ile Gly Arg Leu Asp Arg Glu Ile Ser Ala Lys Ile Phe
 100 105 110

Ala Cys Leu Val Val Tyr Leu Ala Thr Lys Met Val Leu Ser Ile Lys
 115 120 125

Lys Asp Gln Val Thr Thr Lys Ser Leu Thr Pro Leu Ser Ser Val Ile
 130 135 140

Gly Gly Ile Leu Ile Gly Met Ala Ser Ser Ala Ala Gly Ile Gly Gly
 145 150 155 160

Gly Gly Phe Ile Val Pro Phe Leu Thr Ala Arg Gly Ile Asn Ile Lys
 165 170 175

Gln Ala Ile Gly Ser Ser Ala Phe Cys Gly Met Leu Leu Gly Ile Ser
 180 185 190

Gly Met Phe Ser Phe Ile Val Ser Gly Trp Gly Asn Pro Leu Met Pro
 195 200 205

Glu Tyr Ser Leu Gly Tyr Ile Tyr Leu Pro Ala Val Leu Gly Ile Thr
 210 215 220

Ala Thr Ser Phe Phe Thr Ser Lys Leu Gly Ala Ser Ala Thr Ala Lys
 225 230 235 240

Leu Pro Val Ser Thr Leu Lys Lys Gly Phe Ala Leu Phe Leu Ile Val
 245 250 255

Val Ala Ile Asn Met Phe Leu Lys
 260

<210> 1120
 <211> 718
 <212> PRT
 <213> Haemophilus influenzae

<400> 1120

Met Asn Ile Arg Leu Asn Ala Lys Val Ile Ser Thr Ile Pro Val Phe
 1 5 10 15

Ile Ala Val Asn Ile Ala Ala Val Gly Ile Trp Phe Phe Asp Ile Ser
 20 25 30

Ser Gln Ser Met Pro Leu Ile Leu Gly Ile Ile Ala Gly Gly Leu Val
 35 40 45

Asp Leu Asp Asn Arg Leu Thr Gly Arg Leu Lys Asn Val Phe Phe Thr
 50 55 60

Leu Ile Ala Phe Ser Ile Ser Ser Phe Ile Val Gln Leu His Ile Gly
 65 70 75 80

Lys Pro Ile Gln Tyr Ile Val Leu Met Thr Val Leu Thr Phe Ile Phe
 85 90 95

Thr Met Ile Gly Ala Val Gly Gln Arg Tyr Ser Thr Ile Ala Phe Gly
 100 105 110

Ser Leu Val Val Ala Leu Tyr Thr Thr Leu Thr Tyr Ile Pro Glu Val
 115 120 125

Asn Val Trp Phe Ile Asn Pro Val Met Ile Leu Cys Gly Thr Leu Leu
130 135 140

Tyr Ser Val Val Thr Leu Ile Val Tyr Leu Phe Phe Pro Asn Arg Pro
145 150 155 160

Val Gln Glu Ser Val Ala Lys Ala Phe Cys Ala Leu Gly Glu Tyr Leu
165 170 175

Asp Thr Lys Ser Cys Phe Phe Asp Pro Asp Glu Val Ala Glu Ile Glu
180 185 190

Lys Lys His Leu Asn Phe Ala Met Lys Asn Ala Asn Val Val Thr Ala
195 200 205

Phe Asn Ile Val Arg Thr Ala Leu Phe Tyr Arg Ile Arg Gly Gln His
210 215 220

Arg His Pro Leu Thr Gln Arg Met Leu Arg Tyr Tyr Phe Ala Ala Gln
225 230 235 240

Asp Ile His Glu Arg Ala Asn Ser Thr His Phe Asp Tyr Gln Gln Ile
245 250 255

Thr Glu Lys Leu Lys Asn Thr Asp Leu Ile Phe Arg Ile Gln Arg Leu
260 265 270

Leu Glu Leu Gln Ala Gln Ser Cys Lys Glu Ile Thr Ala Ser Leu Arg
275 280 285

Glu Asn Lys Pro Tyr His Phe Asn Lys Arg Val Glu Arg Ala Leu Leu
290 295 300

Gly Thr Leu His Ser Phe Asp Leu Tyr Arg Ala Gln His Leu Asn Asp
305 310 315 320

Gln Asp Glu Leu Ile Asp Ile Gln Thr Leu Leu Asp Asn Leu Gln Ser
325 330 335

Ile Asn Trp Gln Leu Arg Gln Leu Ala Gln Asp Thr Thr Val Thr Glu
340 345 350

Gln Leu Ala Gln Ile His Thr Glu Gln Ile Thr Gly Leu Lys Asn Ile

355	360	365
Ser Ala Val Ile Phe Ser His Phe Thr Phe Glu Ser Pro Leu Phe Arg 370 375 380		
His Ala Val Arg Leu Ser Ile Val Val Phe Leu Cys Cys Ala Ile Val 385 390 395 400		
Glu Phe Phe Gln Phe Asn Leu Gly Tyr Trp Ile Leu Leu Thr Thr Val 405 410 415		
Phe Val Cys Gln Pro Asn Tyr Ser Ala Thr Lys Val Arg Leu Arg Gln 420 425 430		
Arg Ile Ile Gly Thr Ile Leu Gly Val Val Val Gly Ser Leu Leu Pro 435 440 445		
Tyr Leu Asn Pro Thr Leu Glu Leu Lys Leu Gly Leu Val Val Leu Thr 450 455 460		
Ser Thr Leu Phe Phe Phe Phe Arg Ser Asn Asn Tyr Ser Phe Ser Thr 465 470 475 480		
Phe Phe Ile Thr Leu Gln Val Leu Leu Ser Phe Asp Val Met Gly Phe 485 490 495		
Asp Thr Ala Ala Ala Leu Met Pro Arg Leu Leu Asp Thr Leu Leu Gly 500 505 510		
Ala Ala Ile Ser Trp Phe Ala Val Ser Tyr Leu Trp Pro Asp Trp Lys 515 520 525		
Tyr Leu Gln Leu Asp Lys Val Ser His Gln Ala Leu Arg Ser Asp Ala 530 535 540		
Val Tyr Leu Leu His Ile Ile Ser Gln Leu Gln Phe Gly Lys Ser Asp 545 550 555 560		
Asp Leu Lys Tyr Arg Ile Ala Arg Arg Asn Ala His Gln Tyr Ala Ala 565 570 575		
Ala Leu Ser Thr Thr Leu Ser Asn Met Asn Asn Glu Pro Val Lys Tyr 580 585 590		

Lys Ala Tyr Leu Gln Lys Gly Phe Asp Leu Leu Lys Leu Asn Tyr Ser
 595 600 605

Leu Leu Ser Tyr Ile Ser Ala Leu Gly Ala Tyr Arg Asp Arg Met Lys
 610 615 620

Asn Leu Gln Gln Thr Ala Gln Phe Leu Ser Gly Phe Tyr Pro Val Ala
 625 630 635 640

Lys Lys Ile Ile Tyr Thr Leu Glu His Ile Glu Glu Ile Pro Glu Ala
 645 650 655

Ile Phe Asn Gln Gln Gln Glu Ser Ile Glu Thr His Leu Lys Glu Leu
 660 665 670

Glu Lys Gln Glu Met Thr Ala Glu Glu Arg Ala Val Phe Ser Leu Pro
 675 680 685

Tyr Gln Gln Leu Asn Leu Ile Thr Gln Leu Leu Pro Gln Phe Tyr Gly
 690 695 700

Tyr Phe Lys Lys Glu Ile Asn Cys Gln Ser Ala Gly Ala Leu
 705 710 715

<210> 1121
 <211> 417
 <212> PRT
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (14)..(14)
 <223> Xaa can be any naturally occurring amino acid

<400> 1121

Arg Gln Ser Leu Arg Leu Leu Ser Asp Gly Asn Asp Ser Xaa Asp Ile
 1 5 10 15

Arg His Leu Ser Arg Leu Leu Asp Asn Leu Gly Ser Val Asp Gln Gln
 20 25 30

Phe Arg Gln Leu Arg His Ser Asp Ser Pro Ala Glu Asn Asp Arg Met
 35 40 45

Gly Asp Thr Arg Ile Ala Ala Leu Glu Thr Gly Ser Phe Lys Asn Thr
50 55 60

Trp Gln Ala Ile Arg Pro Gln Leu Asn Leu Glu Ser Gly Val Phe Arg
65 70 75 80

His Ala Val Arg Leu Ser Leu Val Val Ala Ala Ala Cys Thr Ile Val
85 90 95

Glu Ala Leu Asn Leu Asn Leu Gly Tyr Trp Ile Leu Leu Thr Arg Leu
100 105 110

Phe Val Cys Gln Pro Asn Tyr Thr Ala Thr Lys Ser Arg Val Tyr Gln
115 120 125

Arg Ile Ala Gly Thr Val Leu Gly Val Ile Val Gly Ser Leu Val Pro
130 135 140

Tyr Phe Thr Pro Ser Val Glu Thr Lys Leu Trp Ile Val Ile Ala Gly
145 150 155 160

Thr Thr Leu Phe Phe Met Thr Arg Thr Tyr Lys Tyr Ser Phe Ser Thr
165 170 175

Phe Phe Ile Thr Ile Gln Ala Leu Thr Ser Leu Ser Leu Ala Gly Leu
180 185 190

Asp Val Tyr Ala Ala Met Pro Val Arg Ile Ile Asp Thr Ile Ile Gly
195 200 205

Ala Ser Leu Ala Trp Ala Ala Val Ser Tyr Leu Trp Pro Asp Trp Lys
210 215 220

Tyr Leu Thr Leu Glu Arg Thr Ala Ala Leu Ala Val Cys Ser Ser Gly
225 230 235 240

Thr Tyr Leu Gln Lys Ile Ala Glu Arg Leu Lys Thr Gly Glu Thr Gly
245 250 255

Asp Asp Ile Glu Tyr Arg Ile Thr Arg Arg Arg Ala His Glu His Thr
260 265 270

Ala Ala Leu Ser Ser Thr Leu Ser Asp Met Ser Ser Glu Pro Ala Lys
 275 280 285

Phe Ala Asp Thr Cys Asn Pro Ala Leu Pro Cys Ser Lys Pro Ala Thr
 290 295 300

Ala Leu Thr Gly Tyr Ile Ser Ala Leu Gly His Thr Ala Ala Lys Cys
 305 310 315 320

Thr Lys Asn Ala Ala Pro Thr Leu Pro His Ser Ser Thr Leu Pro Pro
 325 330 335

Asn Thr Pro Pro Thr Ser Ser Asn Thr Cys Pro Thr Trp Asp Pro Thr
 340 345 350

Thr Phe Arg Arg His Trp Ile His Cys Ala Ala Asn Ser Ala Pro Ser
 355 360 365

Ala Pro Ala Ala Ala Glu His Lys Ala Thr Ser Ser Ser Asn Ser Ser
 370 375 380

Asn Ser Ser Pro Gly Ser Ser Asn Pro Thr Thr Ala Pro Thr Asp Lys
 385 390 395 400

Phe Arg Thr Gly Ser Pro Lys Thr Gln Pro Glu Lys Ile Ser Ala Phe
 405 410 415

Trp

<210> 1122
 <211> 524
 <212> PRT
 <213> Salmonella typhimurium

<400> 1122

Met Gln Glu Phe Tyr Ala Arg Val Trp Asn Thr Lys Glu Met Asn Leu
 1 5 10 15

Leu Lys Ser Leu Ala Ala Val Ser Ser Met Thr Met Phe Ser Arg Val
 20 25 30

Leu Gly Phe Ala Arg Asp Ala Ile Val Ala Arg Ile Phe Gly Ala Gly

35	40	45
Met Ala Thr Asp Ala Phe Phe Val Ala Phe Lys Leu Pro Asn Leu Leu		
50	55	60
Arg Arg Ile Phe Ala Glu Gly Ala Phe Ser Gln Ala Phe Val Pro Ile		
65	70	75
Leu Ala Glu Tyr Lys Ser Lys Gln Gly Glu Glu Ala Thr Arg Ile Phe		
	85	90
Val Ala Tyr Val Ser Gly Leu Leu Thr Leu Ala Leu Ala Val Val Thr		
	100	105
Val Ala Gly Met Leu Ala Ala Pro Trp Val Ile Met Val Thr Ala Pro		
	115	120
Gly Phe Ala Asp Thr Ala Asp Lys Phe Ala Leu Thr Thr Gln Leu Leu		
130	135	140
Arg Ile Thr Phe Pro Tyr Ile Leu Leu Ile Ser Leu Ala Ser Leu Val		
145	150	155
Gly Ala Ile Leu Asn Thr Trp Asn Arg Phe Ser Ile Pro Ala Phe Ala		
	165	170
Pro Thr Phe Leu Asn Ile Ser Met Ile Gly Phe Ala Leu Phe Ala Ala		
	180	185
Pro Tyr Phe Asn Pro Pro Val Leu Ala Leu Ala Trp Ala Val Thr Val		
	195	200
Gly Gly Val Leu Gln Leu Val Tyr Gln Leu Pro Tyr Leu Lys Lys Ile		
210	215	220
Gly Met Leu Val Leu Pro Arg Ile Asn Phe Arg Asp Thr Gly Ala Met		
225	230	235
Arg Val Val Lys Gln Met Gly Pro Ala Ile Leu Gly Val Ser Val Ser		
	245	250
Gln Ile Ser Leu Ile Ile Asn Thr Ile Phe Ala Ser Phe Leu Ala Ser		
	260	265
		270

Gly Ser Val Ser Trp Met Tyr Tyr Ala Asp Arg Leu Met Glu Phe Pro
 275 280 285

Ser Gly Val Leu Gly Val Ala Leu Gly Thr Ile Leu Leu Pro Ser Leu
 290 295 300

Ser Lys Ser Phe Ala Ser Gly Asn His Asp Glu Tyr Cys Arg Leu Met
 305 310 315 320

Asp Trp Gly Leu Arg Leu Cys Phe Leu Leu Ala Leu Pro Ser Ala Val
 325 330 335

Ala Leu Gly Ile Leu Ala Lys Pro Leu Thr Val Ser Leu Phe Gln Tyr
 340 345 350

Gly Lys Phe Thr Ala Phe Asp Ala Ala Met Thr Gln Arg Ala Leu Ile
 355 360 365

Ala Tyr Ser Val Gly Leu Ile Gly Leu Ile Val Val Lys Val Leu Ala
 370 375 380

Pro Gly Phe Tyr Ser Arg Gln Asp Ile Lys Thr Pro Val Lys Ile Ala
 385 390 395 400

Ile Val Thr Leu Ile Met Thr Gln Leu Met Asn Leu Ala Phe Ile Gly
 405 410 415

Pro Leu Lys His Ala Gly Leu Ser Leu Ser Ile Gly Leu Ala Ala Cys
 420 425 430

Leu Asn Ala Ser Leu Leu Tyr Trp Gln Leu Arg Lys Gln Asn Ile Phe
 435 440 445

Thr Pro Gln Pro Gly Trp Met Trp Phe Leu Met Arg Leu Ile Ile Ser
 450 455 460

Val Leu Val Met Ala Ala Val Leu Phe Gly Val Leu His Ile Met Pro
 465 470 475 480

Glu Trp Ser Gln Gly Ser Met Leu Trp Arg Leu Leu Arg Leu Met Ala
 485 490 495

Val Val Ile Ala Gly Ile Ala Ala Tyr Phe Ala Ala Leu Ala Val Leu
500 505 510

Gly Phe Lys Val Lys Glu Phe Val Arg Arg Thr Ala
515 520

<210> 1123

<211> 449

<212> PRT

<213> Actinobacillus pleuropneumoniae

<400> 1123

Met Ile Thr Ile Lys Lys Gly Leu Asp Leu Pro Ile Ala Gly Thr Pro
1 5 10 15

Ala Gln Val Ile His Asn Gly Asn Thr Val Asn Glu Val Ala Met Leu
20 25 30

Gly Glu Glu Tyr Val Gly Met Arg Pro Ser Met Lys Val Arg Glu Gly
35 40 45

Asp Val Val Lys Lys Gly Gln Val Leu Phe Glu Asp Lys Lys Asn Pro
50 55 60

Gly Val Val Phe Thr Ala Pro Ala Ser Gly Thr Val Val Thr Ile Asn
65 70 75 80

Arg Gly Glu Lys Arg Val Leu Gln Ser Val Val Ile Lys Val Glu Gly
85 90 95

Asp Glu Gln Ile Thr Phe Thr Arg Tyr Glu Ala Ala Gln Leu Ala Ser
100 105 110

Leu Ser Ala Glu Gln Val Lys Gln Asn Leu Ile Glu Ser Gly Leu Trp
115 120 125

Thr Ala Phe Arg Thr Arg Pro Phe Ser Lys Val Pro Ala Leu Asp Ala
130 135 140

Ile Pro Ser Ser Ile Phe Val Asn Ala Met Asp Thr Asn Pro Leu Ala
145 150 155 160

Ala Asp Pro Glu Val Val Leu Lys Glu Tyr Glu Thr Asp Phe Lys Asp

165	170	175
Gly Leu Thr Val Leu Thr Arg Leu Phe Asn Gly Gln Lys Pro Val Tyr 180 185 190		
Leu Cys Lys Asp Ala Asp Ser Asn Ile Pro Leu Ser Pro Ala Ile Glu 195 200 205		
Gly Ile Thr Ile Lys Ser Phe Ser Gly Val His Pro Ala Gly Leu Val 210 215 220		
Gly Thr His Ile His Phe Val Asp Pro Val Gly Ala Thr Lys Gln Val 225 230 235 240		
Trp His Leu Asn Tyr Gln Asp Val Ile Ala Ile Gly Lys Leu Phe Thr 245 250 255		
Thr Gly Glu Leu Phe Thr Asp Arg Ile Ile Ser Leu Ala Gly Pro Gln 260 265 270		
Val Lys Asn Pro Arg Leu Val Arg Thr Arg Leu Gly Ala Asn Leu Ser 275 280 285		
Gln Leu Thr Ala Asn Glu Leu Asn Ala Gly Glu Asn Arg Val Ile Ser 290 295 300		
Gly Ser Val Leu Ser Gly Ala Thr Ala Ala Gly Pro Val Asp Tyr Leu 305 310 315 320		
Gly Arg Tyr Ala Leu Gln Val Ser Val Leu Ala Glu Gly Arg Glu Lys 325 330 335		
Glu Leu Phe Gly Trp Ile Met Pro Gly Ser Asp Lys Phe Ser Ile Thr 340 345 350		
Arg Thr Val Leu Gly His Phe Gly Lys Lys Leu Phe Asn Phe Thr Thr 355 360 365		
Ala Val His Gly Gly Glu Arg Ala Met Val Pro Ile Gly Ala Tyr Glu 370 375 380		
Arg Val Met Pro Leu Asp Ile Ile Pro Thr Leu Leu Leu Arg Asp Leu 385 390 395 400		

Ala Ala Gly Asp Thr Asp Ser Ala Gln Asn Leu Gly Cys Leu Glu Leu
405 410 415

Asp Glu Glu Asp Leu Ala Leu Cys Thr Tyr Val Cys Pro Gly Lys Asn
420 425 430

Asn Tyr Gly Pro Met Leu Arg Ala Ala Leu Glu Lys Ile Glu Lys Glu
435 440 445

Gly

<210> 1124
<211> 510
<212> PRT
<213> Escherichia coli

<400> 1124

Met Pro Met Ser Met Ser Ser Ile Pro Ser Ser Ser Gln Ser Gly Lys
1 5 10 15

Leu Tyr Gly Trp Val Glu Arg Ile Gly Asn Lys Val Pro His Pro Phe
20 25 30

Leu Leu Phe Ile Tyr Leu Ile Ile Val Leu Met Val Thr Thr Ala Ile
35 40 45

Leu Ser Ala Phe Gly Val Ser Ala Lys Asn Pro Thr Asp Gly Thr Pro
50 55 60

Val Val Val Lys Asn Leu Leu Ser Val Glu Gly Leu His Trp Phe Leu
65 70 75 80

Pro Asn Val Ile Lys Asn Phe Ser Gly Phe Ala Pro Leu Gly Ala Ile
85 90 95

Leu Ala Leu Val Leu Gly Ala Gly Leu Ala Glu Arg Val Gly Leu Leu
100 105 110

Pro Ala Leu Met Val Lys Met Ala Ser His Val Asn Ala Arg Tyr Ala
115 120 125

Ser Tyr Met Val Leu Phe Ile Ala Phe Phe Ser His Ile Ser Ser Asp
 130 135 140

Ala Ala Leu Val Ile Met Pro Pro Met Gly Ala Leu Ile Phe Leu Ala
 145 150 155 160

Val Gly Arg His Pro Val Ala Gly Leu Leu Ala Ala Ile Ala Gly Val
 165 170 175

Gly Cys Gly Phe Thr Ala Asn Leu Leu Ile Val Thr Thr Asp Val Leu
 180 185 190

Leu Ser Gly Ile Ser Thr Glu Ala Ala Ala Ala Phe Asn Pro Gln Met
 195 200 205

His Val Ser Val Ile Asp Asn Trp Tyr Phe Met Ala Ser Ser Val Val
 210 215 220

Val Leu Thr Ile Val Gly Gly Leu Ile Thr Asp Lys Ile Ile Glu Pro
 225 230 235 240

Arg Leu Gly Gln Trp Gln Gly Asn Ser Asp Glu Lys Leu Gln Thr Leu
 245 250 255

Thr Glu Ser Gln Arg Phe Gly Leu Arg Ile Ala Gly Val Val Ser Leu
 260 265 270

Leu Phe Ile Ala Ala Ile Ala Leu Met Val Ile Pro Gln Asn Gly Ile
 275 280 285

Leu Arg Asp Pro Ile Asn His Thr Val Met Pro Ser Pro Phe Ile Lys
 290 295 300

Gly Ile Val Pro Leu Ile Ile Leu Phe Phe Phe Val Val Ser Leu Ala
 305 310 315 320

Tyr Gly Ile Ala Thr Arg Thr Ile Arg Arg Gln Ala Asp Leu Pro His
 325 330 335

Leu Met Ile Glu Pro Met Lys Glu Met Ala Gly Phe Ile Val Met Val
 340 345 350

Phe Pro Leu Ala Gln Phe Val Ala Met Phe Asn Trp Ser Asn Met Gly

355 360 365
 Lys Phe Ile Ala Val Gly Leu Thr Asp Ile Leu Glu Ser Ser Gly Leu
 370 375 380
 Ser Gly Ile Pro Ala Phe Val Gly Leu Ala Leu Leu Ser Ser Phe Leu
 385 390 395 400
 Cys Met Phe Ile Ala Ser Gly Ser Ala Ile Trp Ser Ile Leu Ala Pro
 405 410 415
 Ile Phe Val Pro Met Phe Met Leu Leu Gly Phe His Pro Ala Phe Ala
 420 425 430
 Gln Ile Leu Phe Arg Ile Ala Asp Ser Ser Val Leu Pro Leu Ala Pro
 435 440 445
 Val Ser Pro Phe Val Pro Leu Phe Leu Gly Phe Leu Gln Arg Tyr Lys
 450 455 460
 Pro Asp Ala Lys Leu Gly Thr Tyr Tyr Ser Leu Val Leu Pro Tyr Pro
 465 470 475 480
 Leu Ile Phe Leu Val Val Trp Leu Leu Met Leu Leu Ala Trp Tyr Leu
 485 490 495
 Val Gly Leu Pro Ile Gly Pro Gly Ile Tyr Pro Arg Leu Ser
 500 505 510
 <210> 1125
 <211> 259
 <212> PRT
 <213> Erwinia chrysanthemi
 <400> 1125
 Met Lys Ala Val Lys Thr Ser Gln Arg Val Met Val Trp Ala Leu Val
 1 5 10 15
 Trp Leu Thr Gly Leu Gln Pro Val Leu Pro Ala Trp Ala Ala Gly Val
 20 25 30
 Thr Val Ala Ser Gly Asn Thr Ala Leu Glu Ala Ala Gly Asn Gly Val
 35 40 45

Pro Val Val Asn Ile Ala Thr Pro Asp Ala Ser Gly Leu Ser His Asn
50 55 60

Arg Tyr His Asp Phe Asn Val Asp Asn Arg Gly Leu Ile Leu Asn Asn
65 70 75 80

Gly Thr Ala Arg Leu Thr Pro Ser Gln Leu Gly Gly Leu Ile Gln Asn
85 90 95

Asn Pro Asn Leu Asn Gly Arg Ala Ala Ala Ala Ile Leu Asn Glu Val
100 105 110

Val Ser Pro Asn Arg Ser Arg Leu Ala Gly Tyr Leu Glu Val Ala Gly
115 120 125

Gln Ala Ala Asn Val Val Val Ala Asn Pro Tyr Gly Ile Thr Cys Ser
130 135 140

Gly Cys Gly Phe Leu Asn Thr Pro Arg Leu Thr Leu Thr Thr Gly Thr
145 150 155 160

Pro Gln Phe Asp Ala Ala Gly Gly Leu Ser Gly Leu Asp Val Arg Gly
165 170 175

Gly Asp Ile Leu Ile Asp Gly Ala Gly Leu Asp Ala Ser Arg Ser Asp
180 185 190

Tyr Phe Gly Leu Ile Ala Arg Thr Ala Ser Leu Gln Ala Gly Leu Asn
195 200 205

Ala Arg Asp Ala Gln Val Val Leu Gly Ala Asn Arg Val Gly Ala Asp
210 215 220

Gly Arg Val Thr Ala Gln Ala Gly Ser Gly Pro Ala Pro Val Leu Ala
225 230 235 240

Leu Asp Thr Gly Ala Leu Gly Gly Met Tyr Ala Asn Arg Ile Arg Leu
245 250 255

Val Ser Thr

<210> 1126
 <211> 276
 <212> PRT
 <213> Pasteurella haemolytica

<400> 1126

Met Asn Phe Lys Lys Leu Leu Gly Val Ala Leu Val Ser Ala Leu Ala
 1 5 10 15

Leu Thr Ala Cys Lys Asp Glu Lys Ala Gln Ala Pro Ala Thr Thr Ala
 20 25 30

Lys Thr Glu Asn Lys Ala Pro Leu Lys Val Gly Val Met Thr Gly Pro
 35 40 45

Glu Ala Gln Met Thr Glu Val Ala Val Lys Ile Ala Lys Glu Lys Tyr
 50 55 60

Gly Leu Asp Val Glu Leu Val Gln Phe Thr Glu Tyr Thr Gln Pro Asn
 65 70 75 80

Ala Ala Leu His Ser Lys Asp Leu Asp Ala Asn Ala Phe Gln Thr Val
 85 90 95

Pro Tyr Leu Glu Gln Glu Val Lys Asp Arg Gly Tyr Lys Leu Ala Ile
 100 105 110

Ile Gly Asn Thr Leu Val Trp Pro Ile Ala Ala Tyr Ser Lys Lys Ile
 115 120 125

Lys Asn Ile Ser Glu Leu Lys Asp Gly Ala Thr Val Ala Ile Pro Asn
 130 135 140

Asn Ala Ser Asn Thr Ala Arg Ala Leu Leu Leu Leu Gln Ala His Gly
 145 150 155 160

Leu Leu Lys Leu Lys Asp Pro Lys Asn Val Phe Ala Thr Glu Asn Asp
 165 170 175

Ile Ile Glu Asn Pro Lys Asn Ile Lys Ile Val Gln Ala Asp Thr Ser
 180 185 190

Leu Leu Thr Arg Met Leu Asp Asp Val Glu Leu Ala Val Ile Asn Asn
 195 200 205

Thr Tyr Ala Gly Gln Ala Gly Leu Ser Pro Asp Lys Asp Gly Ile Ile
 210 215 220

Val Glu Ser Lys Asp Ser Pro Tyr Val Asn Leu Val Val Ser Arg Glu
 225 230 235 240

Asp Asn Lys Asp Asp Pro Arg Leu Gln Thr Phe Val Lys Ser Phe Gln
 245 250 255

Thr Glu Glu Val Phe Gln Glu Ala Leu Lys Leu Phe Asn Gly Gly Val
 260 265 270

Val Lys Gly Trp
 275

<210> 1127
 <211> 267
 <212> PRT
 <213> Bordetella pertussis

<400> 1127

Met Ile Ile Leu Ile Asp Ser Gly Asn Ser Arg Leu Lys Val Gly Trp
 1 5 10 15

Phe Asp Pro Asp Ala Pro Gln Ala Ala Arg Glu Pro Ala Pro Val Ala
 20 25 30

Phe Asp Asn Leu Asp Leu Asp Ala Leu Gly Arg Trp Leu Ala Thr Leu
 35 40 45

Pro Arg Arg Pro Gln Arg Ala Leu Gly Val Asn Val Ala Gly Leu Ala
 50 55 60

Arg Gly Glu Ala Ile Ala Ala Thr Leu Arg Ala Gly Gly Cys Asp Ile
 65 70 75 80

Arg Trp Leu Arg Ala Gln Pro Leu Ala Met Gly Leu Arg Asn Gly Tyr
 85 90 95

Arg Asn Pro Asp Gln Leu Gly Ala Asp Arg Trp Ala Cys Met Val Gly
 100 105 110

Val Leu Ala Arg Gln Pro Ser Val His Pro Pro Leu Leu Val Ala Ser
 115 120 125

Phe Gly Thr Ala Thr Thr Leu Asp Thr Ile Gly Pro Asp Asn Val Phe
 130 135 140

Pro Gly Gly Leu Ile Leu Pro Gly Pro Ala Met Met Arg Gly Ala Leu
 145 150 155 160

Ala Tyr Gly Thr Ala His Leu Pro Leu Ala Asp Gly Leu Val Ala Asp
 165 170 175

Tyr Pro Ile Asp Thr His Gln Ala Ile Ala Ser Gly Ile Ala Ala Ala
 180 185 190

Gln Ala Gly Ala Ile Val Arg Gln Trp Leu Ala Gly Arg Gln Arg Tyr
 195 200 205

Gly Gln Ala Pro Glu Ile Tyr Val Ala Gly Gly Gly Trp Pro Glu Val
 210 215 220

Arg Gln Glu Ala Glu Arg Leu Leu Ala Val Thr Gly Ala Ala Phe Gly
 225 230 235 240

Ala Thr Pro Gln Pro Thr Tyr Leu Asp Ser Pro Val Leu Asp Gly Leu
 245 250 255

Ala Ala Leu Ala Ala Gln Gly Ala Pro Thr Ala
 260 265

<210> 1128
 <211> 128
 <212> PRT
 <213> Haemophilus influenzae

<400> 1128

Met Leu Tyr Gln Ile Leu Ala Leu Leu Ile Trp Ser Ser Ser Leu Ile
 1 5 10 15

Val Gly Lys Leu Thr Tyr Ser Met Met Asp Pro Val Leu Val Val Gln
 20 25 30

Val Arg Leu Ile Ile Ala Met Ile Ile Val Met Pro Leu Phe Leu Arg
 35 40 45

Arg Trp Lys Lys Ile Asp Lys Pro Met Arg Lys Gln Leu Trp Trp Leu
 50 55 60

Ala Phe Phe Asn Tyr Thr Ala Val Phe Leu Leu Gln Phe Ile Gly Leu
 65 70 75 80

Lys Tyr Thr Ser Ala Ser Ser Ala Val Thr Met Ile Gly Leu Glu Pro
 85 90 95

Leu Leu Val Val Phe Val Gly His Phe Phe Phe Lys Thr Lys Gln Asn
 100 105 110

Gly Phe Thr Gly Tyr Ser Val Gln Trp His Leu Leu Ala Trp Gln Phe
 115 120 125

<210> 1129

<211> 771

<212> PRT

<213> Azorhizobium caulinodans

<400> 1129

Met Thr Gln Ala Ala Phe Asp Gln Ala Ser Asp Asn Gly Pro Met Thr
 1 5 10 15

Pro Ser Gly Ser Ser Phe Gly Leu Phe Ala Pro Ala Val Val Leu Leu
 20 25 30

Ala Leu Ile Ser Ala Leu Ala Thr Phe Leu Ile Leu Met Gly Leu Thr
 35 40 45

Pro Val Val Pro Thr His Gln Val Val Ile Ser Val Leu Leu Val Asn
 50 55 60

Ala Ala Ala Val Leu Ile Leu Ser Ala Met Val Gly Arg Glu Ile Trp
 65 70 75 80

Arg Ile Ala Lys Ala Arg Ala Arg Gly Arg Ala Ala Ala Arg Leu His
 85 90 95

Ile Arg Ile Val Gly Leu Phe Ala Val Val Ser Val Val Pro Ala Ile
 100 105 110

Leu Val Ala Val Val Ala Ser Leu Thr Leu Asp Arg Gly Leu Asp Arg
 115 120 125

Trp Phe Ser Met Arg Thr Gln Glu Ile Val Ala Ser Ser Val Ser Val
 130 135 140

Ala Gln Thr Tyr Val Arg Glu His Ala Leu Asn Ile Arg Gly Asp Ile
 145 150 155 160

Leu Ala Met Ser Ala Asp Leu Thr Arg Leu Lys Ser Val Tyr Glu Gly
 165 170 175

Asp Arg Ser Arg Phe Asn Gln Ile Leu Thr Ala Gln Ala Ala Leu Arg
 180 185 190

Asn Leu Pro Gly Ala Met Leu Ile Arg Arg Asp Leu Ser Val Val Glu
 195 200 205

Arg Ala Asn Val Asn Ile Gly Arg Glu Phe Ile Val Pro Ala Asn Leu
 210 215 220

Ala Ile Gly Asp Ala Thr Pro Asp Gln Pro Val Ile Tyr Leu Pro Asn
 225 230 235 240

Asp Ala Asp Tyr Val Ala Ala Val Val Pro Leu Lys Asp Tyr Asp Asp
 245 250 255

Leu Tyr Leu Tyr Val Ala Arg Leu Ile Asp Pro Arg Val Ile Gly Tyr
 260 265 270

Leu Lys Thr Thr Gln Glu Thr Leu Ala Asp Tyr Arg Ser Leu Glu Glu
 275 280 285

Arg Arg Phe Gly Val Gln Val Ala Phe Ala Leu Met Tyr Ala Val Ile
 290 295 300

Thr Leu Ile Val Leu Leu Ser Ala Val Trp Leu Gly Leu Asn Phe Ser
 305 310 315 320

Lys Trp Leu Val Ala Pro Ile Arg Arg Leu Met Ser Ala Ala Asp His
 325 330 335

Val Ala Glu Gly Asn Leu Asp Val Arg Val Pro Ile Tyr Arg Ala Glu

340	345	350
Gly Asp Leu Ala Ser Leu Ala Glu Thr Phe Asn Lys Met Thr His Glu 355 360 365		
Leu Arg Ser Gln Arg Glu Ala Ile Leu Thr Ala Arg Asp Gln Ile Asp 370 375 380		
Ser Arg Arg Arg Phe Thr Glu Ala Val Leu Ser Gly Val Gly Ala Gly 385 390 395 400		
Val Ile Gly Leu Asp Ser Gln Glu Arg Ile Thr Ile Leu Asn Arg Ser 405 410 415		
Ala Glu Arg Leu Leu Gly Leu Ser Glu Val Glu Ala Leu His Arg His 420 425 430		
Leu Ala Glu Val Val Pro Glu Thr Ala Gly Leu Leu Glu Glu Ala Glu 435 440 445		
His Ala Arg Gln Arg Ser Val Gln Gly Asn Ile Thr Leu Thr Arg Asp 450 455 460		
Gly Arg Glu Arg Val Phe Ala Val Arg Val Thr Thr Glu Gln Ser Pro 465 470 475 480		
Glu Ala Glu His Gly Trp Val Val Thr Leu Asp Asp Ile Thr Glu Leu 485 490 495		
Ile Ser Ala Gln Arg Thr Ser Ala Trp Ala Asp Val Ala Arg Arg Ile 500 505 510		
Ala His Glu Ile Lys Asn Pro Leu Thr Pro Ile Gln Leu Ser Ala Glu 515 520 525		
Arg Leu Lys Arg Lys Phe Gly Arg His Val Thr Gln Asp Arg Glu Ile 530 535 540		
Phe Asp Gln Cys Thr Asp Thr Ile Ile Arg Gln Val Gly Asp Ile Gly 545 550 555 560		
Arg Met Val Asp Glu Phe Ser Ser Phe Ala Arg Met Pro Lys Pro Val 565 570 575		

Val Asp Ser Gln Asp Met Ser Glu Ile Ile Arg Gln Thr Val Phe Leu
580 585 590

Met Arg Val Gly His Pro Glu Val Val Phe Asp Ser Glu Val Pro Pro
595 600 605

Ala Met Pro Ala Arg Phe Asp Arg Arg Leu Val Ser Gln Ala Leu Thr
610 615 620

Asn Ile Leu Lys Asn Ala Ala Glu Ala Ile Glu Ala Val Pro Pro Asp
625 630 635 640

Val Arg Gly Gln Gly Arg Ile Arg Val Ser Ala Asn Arg Val Gly Glu
645 650 655

Asp Leu Val Ile Asp Ile Ile Asp Asn Gly Thr Gly Leu Pro Gln Glu
660 665 670

Ser Arg Asn Arg Leu Leu Glu Pro Tyr Val Thr Thr Arg Glu Lys Gly
675 680 685

Thr Gly Leu Gly Leu Ala Ile Val Gly Lys Ile Met Glu Glu His Gly
690 695 700

Gly Gly Ile Glu Leu Asn Asp Ala Pro Glu Gly Arg Gly Ala Trp Ile
705 710 715 720

Arg Leu Thr Leu Lys Ala Glu Gly Pro Lys Ala Glu Pro Thr Asp Ala
725 730 735

Ser Thr Lys Ala Thr Gly Ala Ala Thr Pro Ala Ala Pro Ala Ala Ser
740 745 750

Ala Met Ala Arg Asp Ala Ala Ala Asp Ser Ala Ala Arg Gly Lys Asn
755 760 765

Glu Arg Thr
770

<210> 1130
<211> 221
<212> PRT

<213> Escherichia coli

<400> 1130

Met Asn Val Phe Ser Gln Thr Gln Arg Tyr Lys Ala Leu Phe Trp Leu
1 5 10 15

Ser Leu Phe His Leu Leu Val Ile Thr Ser Ser Asn Tyr Leu Val Gln
20 25 30

Leu Pro Val Ser Ile Leu Gly Phe His Thr Thr Trp Gly Ala Phe Ser
35 40 45

Phe Pro Phe Ile Phe Leu Ala Thr Asp Leu Thr Val Arg Ile Phe Gly
50 55 60

Ala Pro Leu Ala Arg Arg Ile Ile Phe Ala Val Met Ile Pro Ala Leu
65 70 75 80

Leu Ile Ser Tyr Val Ile Ser Ser Leu Phe Tyr Met Gly Ser Trp Gln
85 90 95

Gly Phe Gly Ala Leu Ala His Phe Asn Leu Phe Val Ala Arg Ile Ala
100 105 110

Thr Ala Ser Phe Met Ala Tyr Ala Leu Gly Gln Ile Leu Asp Val His
115 120 125

Val Phe Asn Arg Leu Arg Gln Ser Arg Arg Trp Trp Leu Ala Pro Thr
130 135 140

Ala Ser Thr Leu Phe Gly Asn Val Ser Asp Thr Leu Ala Phe Phe Phe
145 150 155 160

Ile Ala Phe Trp Arg Ser Pro Asp Ala Phe Met Ala Glu His Trp Met
165 170 175

Glu Ile Ala Leu Val Asp Tyr Cys Phe Lys Val Leu Ile Ser Ile Val
180 185 190

Phe Phe Leu Pro Met Tyr Gly Val Leu Leu Asn Met Leu Leu Lys Arg
195 200 205

Leu Ala Asp Lys Ser Glu Ile Asn Ala Leu Gln Ala Ser

210

215

220

<210> 1131

<211> 286

<212> PRT

<213> Escherichia coli

<400> 1131

Met Lys Gln His Gln Ser Ala Asp Asn Ser Gln Gly Gln Leu Tyr Ile
 1 5 10 15

Val Pro Thr Pro Ile Gly Asn Leu Ala Asp Ile Thr Gln Arg Ala Leu
 20 25 30

Glu Val Leu Gln Ala Val Asp Leu Ile Ala Ala Glu Asp Thr Arg His
 35 40 45

Thr Gly Leu Leu Leu Gln His Phe Gly Ile Asn Ala Arg Leu Phe Ala
 50 55 60

Leu His Asp His Asn Glu Gln Gln Lys Ala Glu Thr Leu Leu Ala Lys
 65 70 75 80

Leu Gln Glu Gly Gln Asn Ile Ala Leu Val Ser Asp Ala Gly Thr Pro
 85 90 95

Leu Ile Asn Asp Pro Gly Tyr His Leu Val Arg Thr Cys Arg Glu Ala
 100 105 110

Gly Ile Arg Val Val Pro Leu Pro Gly Pro Cys Ala Ala Ile Thr Ala
 115 120 125

Leu Ser Ala Ala Gly Leu Pro Ser Asp Arg Phe Cys Tyr Glu Gly Phe
 130 135 140

Leu Pro Ala Lys Ser Lys Gly Arg Arg Asp Ala Leu Lys Ala Ile Glu
 145 150 155 160

Ala Glu Pro Arg Thr Leu Ile Phe Tyr Glu Ser Thr His Arg Leu Leu
 165 170 175

Asp Ser Leu Glu Asp Ile Val Ala Val Leu Gly Glu Ser Arg Tyr Val
 180 185 190

Val Leu Ala Arg Glu Leu Thr Lys Thr Trp Glu Thr Ile His Gly Ala
 195 200 205

Pro Val Gly Glu Leu Leu Ala Trp Val Lys Glu Asp Glu Asn Arg Arg
 210 215 220

Lys Gly Glu Met Val Leu Ile Val Glu Gly His Lys Ala Gln Glu Glu
 225 230 235 240

Asp Leu Pro Ala Asp Ala Leu Arg Thr Leu Ala Leu Leu Gln Ala Glu
 245 250 255

Leu Pro Leu Lys Lys Ala Ala Ala Leu Ala Ala Glu Ile His Gly Val
 260 265 270

Lys Lys Asn Ala Leu Tyr Lys Tyr Ala Leu Glu Gln Gln Gly
 275 280 285

<210> 1132
 <211> 292
 <212> PRT
 <213> Bacillus subtilis

<400> 1132

Met Lys Lys Ile Ala Ile Ala Ala Ile Thr Ala Thr Ser Ile Leu Ala
 1 5 10 15

Leu Ser Ala Cys Ser Ser Gly Asp Lys Glu Val Ile Ala Lys Thr Asp
 20 25 30

Ala Gly Asp Val Thr Lys Gly Glu Leu Tyr Thr Asn Met Lys Lys Thr
 35 40 45

Ala Gly Ala Ser Val Leu Thr Gln Leu Val Gln Glu Lys Val Leu Asp
 50 55 60

Lys Lys Tyr Lys Val Ser Asp Lys Glu Ile Asp Asn Lys Leu Lys Glu
 65 70 75 80

Tyr Lys Thr Gln Leu Gly Asp Gln Tyr Thr Ala Leu Glu Lys Gln Tyr
 85 90 95

Gly Lys Asp Tyr Leu Lys Glu Gln Val Lys Tyr Glu Leu Leu Thr Gln

100	105	110
Lys Ala Ala Lys Asp Asn Ile Lys Val Thr Asp Ala Asp Ile Lys Glu		
115	120	125
Tyr Trp Glu Gly Leu Lys Gly Lys Ile Arg Ala Ser His Ile Leu Val		
130	135	140
Ala Asp Lys Lys Thr Ala Glu Glu Val Glu Lys Lys Leu Lys Lys Gly		
145	150	155
Glu Lys Phe Glu Asp Leu Ala Lys Glu Tyr Ser Thr Asp Ser Ser Ala		
165	170	175
Ser Lys Gly Gly Asp Leu Gly Trp Phe Ala Lys Glu Gly Gln Met Asp		
180	185	190
Glu Thr Phe Ser Lys Ala Ala Phe Lys Leu Lys Thr Gly Glu Val Ser		
195	200	205
Asp Pro Val Lys Thr Gln Tyr Gly Tyr His Ile Ile Lys Lys Thr Glu		
210	215	220
Glu Arg Gly Lys Tyr Asp Asp Met Lys Lys Glu Leu Lys Ser Glu Val		
225	230	235
Leu Glu Gln Lys Leu Asn Asp Asn Ala Ala Val Gln Glu Ala Val Gln		
245	250	255
Lys Val Met Lys Lys Ala Asp Ile Glu Val Lys Asp Lys Asp Leu Lys		
260	265	270
Asp Thr Phe Asn Thr Ser Ser Thr Ser Asn Ser Thr Ser Ser Ser Ser		
275	280	285
Ser Asn Ser Lys		
290		

<210> 1133
 <211> 547
 <212> PRT
 <213> Escherichia coli

 <400> 1133

Met Asn Leu Asp Phe Trp Met Thr Val Phe Asn Lys Phe Ala Arg Ser
 1 5 10 15

Phe Lys Ser His Trp Leu Leu Tyr Leu Ser Val Ile Val Phe Gly Ile
 20 25 30

Thr Asn Leu Val Ala Ser Ser Gly Ala His Met Val Gln Arg Leu Leu
 35 40 45

Phe Phe Val Leu Thr Ile Leu Val Val Lys Arg Ile Ser Ser Leu Pro
 50 55 60

Leu Arg Leu Leu Val Ala Ala Pro Phe Val Leu Leu Thr Ala Ala Asp
 65 70 75 80

Met Ser Ile Ser Leu Tyr Ser Trp Cys Thr Phe Gly Thr Thr Phe Asn
 85 90 95

Asp Gly Phe Ala Ile Ser Val Leu Gln Ser Asp Pro Asp Glu Val Ala
 100 105 110

Lys Met Leu Gly Met Tyr Ser Pro Tyr Leu Cys Ala Phe Ala Phe Leu
 115 120 125

Ser Leu Leu Phe Leu Ala Val Ile Ile Lys Tyr Asp Val Ser Leu Pro
 130 135 140

Thr Lys Lys Val Thr Gly Ile Leu Leu Leu Ile Val Ile Ser Gly Ser
 145 150 155 160

Leu Phe Ser Ala Cys Gln Phe Ala Tyr Lys Asp Ala Lys Asn Lys Asn
 165 170 175

Ala Phe Ser Pro Tyr Ile Leu Ala Ser Arg Phe Ala Thr Tyr Thr Pro
 180 185 190

Phe Phe Asn Leu Asn Tyr Phe Ala Leu Ala Ala Lys Glu His Gln Arg
 195 200 205

Leu Leu Ser Ile Ala Asn Thr Val Pro Tyr Phe Gln Leu Ser Val Arg
 210 215 220

Asp Thr Gly Ile Asp Thr Tyr Val Leu Ile Val Gly Glu Ser Val Arg
 225 230 235 240

Val Asp Asn Met Ser Leu Tyr Gly Tyr Thr Arg Ser Thr Thr Pro Gln
 245 250 255

Val Glu Ala Gln Arg Lys Gln Ile Lys Leu Phe Asn Gln Ala Ile Ser
 260 265 270

Gly Ala Pro Tyr Thr Ala Leu Ser Val Pro Leu Ser Leu Thr Ala Asp
 275 280 285

Ser Val Leu Ser His Asp Ile His Asn Tyr Pro Asp Asn Ile Ile Asn
 290 295 300

Met Ala Asn Gln Ala Gly Phe Gln Thr Phe Trp Leu Ser Ser Gln Ser
 305 310 315 320

Ala Phe Arg Gln Asn Gly Thr Ala Val Thr Ser Ile Ala Met Arg Ala
 325 330 335

Met Glu Thr Val Tyr Val Arg Gly Phe Asp Glu Leu Leu Leu Pro His
 340 345 350

Leu Ser Gln Ala Leu Gln Gln Asn Thr Gln Gln Lys Lys Leu Ile Val
 355 360 365

Leu His Leu Asn Gly Ser His Glu Pro Ala Cys Ser Ala Tyr Pro Gln
 370 375 380

Ser Ser Ala Val Phe Gln Pro Gln Asp Asp Gln Asp Ala Cys Tyr Asp
 385 390 395 400

Asn Ser Ile His Tyr Thr Asp Ser Leu Leu Gly Gln Val Phe Glu Leu
 405 410 415

Leu Lys Asp Arg Arg Ala Ser Val Met Tyr Phe Ala Asp His Gly Leu
 420 425 430

Glu Arg Asp Pro Thr Lys Lys Asn Val Tyr Phe His Gly Gly Arg Glu
 435 440 445

Ala Ser Gln Gln Ala Tyr His Val Pro Met Phe Ile Trp Tyr Ser Pro

450 455 460
 Val Leu Gly Asp Gly Val Asp Arg Thr Thr Glu Asn Asn Ile Phe Ser
 465 470 475 480
 Thr Ala Tyr Asn Asn Tyr Leu Ile Asn Ala Trp Met Gly Val Thr Lys
 485 490 495
 Pro Glu Gln Pro Gln Thr Leu Glu Glu Val Ile Val His Tyr Lys Gly
 500 505 510
 Asp Ser Leu Val Val Asp Ala Asn His Asp Val Phe Asp Tyr Val Met
 515 520 525
 Leu Arg Lys Glu Phe Thr Glu Asp Lys Gln Gly Asn Pro Thr Pro Glu
 530 535 540
 Gly Gln Gly
 545
 <210> 1134
 <211> 537
 <212> PRT
 <213> Aquifex aeolicus
 <400> 1134
 Met Lys Arg Val Leu Glu Phe Leu Gly Gly Phe Gly Gly Leu Val Phe
 1 5 10 15
 Gly Phe Val Phe Phe Val Gly Met Ser Ile Leu Gly Leu Phe His Leu
 20 25 30
 Glu Glu His Pro Pro Leu Tyr Trp Ala Gly Phe Phe Ala Ser Val Phe
 35 40 45
 Leu Phe Val Leu Ser Phe Leu Leu Asn Leu Ile Asn Trp Val Lys Ala
 50 55 60
 Leu Ile Lys Asp Tyr Lys Lys His Gly Ser Val Leu Ala Phe Val Tyr
 65 70 75 80
 Asp Phe Leu Ala Ser Leu Lys Leu Ala Ile Phe Ile Met Leu Val Leu
 85 90 95

Gly Ile Leu Ser Met Leu Gly Ser Thr Tyr Ile Lys Gln Asn Gln Ser
 100 105 110

Phe Glu Trp Tyr Leu Asp Gln Phe Gly Tyr Asp Val Gly Ile Trp Ile
 115 120 125

Trp Lys Leu Trp Leu Asn Asp Val Phe His Ser Trp Tyr Tyr Ile Leu
 130 135 140

Phe Ile Val Leu Leu Ala Val Asn Leu Ile Phe Cys Ser Ile Lys Arg
 145 150 155 160

Leu Pro Arg Val Trp Lys Gln Ala Phe Ser Lys Glu Arg Ile Leu Lys
 165 170 175

Leu Asp Glu His Ala Glu Lys His Leu Lys Pro Ile Thr Val Lys Ile
 180 185 190

Pro Asp Lys Asp Lys Val Leu Lys Phe Leu Leu Lys Lys Gly Phe Lys
 195 200 205

Val Phe Val Glu Glu Glu Gly Asn Lys Leu Tyr Val Phe Ala Glu Lys
 210 215 220

Gly Arg Phe Ser Arg Leu Gly Val Tyr Ile Thr His Ile Ala Leu Leu
 225 230 235 240

Val Ile Met Ala Gly Ala Leu Ile Asp Ala Ile Val Gly Val Arg Gly
 245 250 255

Ser Leu Ile Val Ala Glu Gly Asp Thr Asn Asp Val Met Leu Val Gly
 260 265 270

Ala Glu Gln Lys Pro Tyr Lys Leu Pro Phe Ala Val His Leu Ile Asp
 275 280 285

Phe Arg Ile Lys Thr Tyr Ala Glu Glu Asn Pro Asn Val Asp Lys Arg
 290 295 300

Phe Ala Gln Ala Val Ser Ser Tyr Glu Ser Asp Ile Glu Ile Ile Asn
 305 310 315 320

Gly Gly Lys Val Glu Ala Lys Gly Thr Val Lys Val Asn Glu Pro Phe
325 330 335

Asp Phe Gly Arg Tyr Arg Leu Phe Gln Ala Thr Tyr Gly Ile Leu Asp
340 345 350

Gly Thr Ser Gly Met Gly Val Ile Val Val Asp Arg Lys Lys Ala His
355 360 365

Glu Asp Pro Glu Lys Ala Val Ile Gly Thr Phe Glu Ile Lys Thr Gly
370 375 380

Gln Val Val Glu Phe Lys Asp Met Leu Ile Ser Ile Asp Arg Val Val
385 390 395 400

Leu Asn Val His Asp Pro Asn Asn Arg Asn Glu Leu Ala Pro Ala Val
405 410 415

Val Leu Lys Val Met Leu Asn Arg Glu Leu Tyr Ser Val Pro Val Ile
420 425 430

Tyr Asp Pro Arg Leu Thr Ala Leu Val Phe Ser Gln Ile Pro Glu Leu
435 440 445

Lys Asp Phe Pro Tyr Met Phe Phe Met Asn Gly Phe Glu Pro Leu Phe
450 455 460

Phe Ser Gly Phe Glu Val Ser Tyr His Pro Gly Ser Val Ile Ile Trp
465 470 475 480

Ile Gly Ser Ala Ile Leu Val Leu Gly Met Val Val Ala Phe Tyr Thr
485 490 495

Val His Arg Lys Val Trp Met Arg Ile Glu Gly Asp Thr Ala Lys Val
500 505 510

Ala Phe Tyr Ser His Lys Phe Lys Glu Glu Phe Lys Arg Ser Phe Leu
515 520 525

Arg Glu Leu Glu Glu Leu Lys Arg Ala
530 535

<210> 1135

<211> 165
 <212> PRT
 <213> *Neisseria gonorrhoeae*

<400> 1135

Met Asn Thr Leu Gln Lys Gly Phe Thr Leu Ile Glu Leu Met Ile Val
 1 5 10 15

Ile Ala Ile Val Gly Ile Leu Ala Ala Val Ala Leu Pro Ala Tyr Gln
 20 25 30

Asp Tyr Thr Ala Arg Ala Gln Val Ser Glu Ala Ile Leu Leu Ala Glu
 35 40 45

Gly Gln Lys Ser Ala Val Thr Glu Tyr Tyr Leu Asn His Gly Ile Trp
 50 55 60

Pro Lys Asp Asn Thr Ser Ala Gly Val Ala Ser Ser Asp Lys Ile Lys
 65 70 75 80

Gly Lys Tyr Val Gln Ser Val Thr Val Ala Lys Gly Val Val Thr Ala
 85 90 95

Glu Met Ala Ser Thr Gly Val Asn Lys Glu Ile Gln Gly Lys Lys Leu
 100 105 110

Ser Leu Trp Ala Lys Arg Gln Asp Gly Ser Val Lys Trp Phe Cys Gly
 115 120 125

Gln Pro Val Thr Arg Gly Ala Lys Asp Asp Asp Ala Val Thr Ala Asp
 130 135 140

Gly Asn Asn Lys Ile Asp Thr Lys His Leu Pro Ser Thr Cys Arg Asp
 145 150 155 160

Asn Phe Asp Ala Ser
 165

<210> 1136
 <211> 211
 <212> PRT
 <213> *Escherichia coli*

<400> 1136

Met Phe Lys Arg Leu Met Met Val Ala Leu Leu Val Ile Ala Pro Leu
 1 5 10 15

Ser Ala Ala Thr Ala Ala Asp Gln Thr Asn Pro Tyr Lys Leu Met Asp
 20 25 30

Glu Ala Ala Gln Lys Thr Phe Asp Arg Leu Lys Asn Glu Gln Pro Gln
 35 40 45

Ile Arg Ala Asn Pro Asp Tyr Leu Arg Thr Ile Val Asp Gln Glu Leu
 50 55 60

Leu Pro Tyr Val Gln Val Lys Tyr Ala Gly Ala Leu Val Leu Gly Gln
 65 70 75 80

Tyr Tyr Lys Ser Ala Thr Pro Ala Gln Arg Glu Ala Tyr Phe Ala Ala
 85 90 95

Phe Arg Glu Tyr Leu Lys Gln Ala Tyr Gly Gln Ala Leu Ala Met Tyr
 100 105 110

His Gly Gln Thr Tyr Gln Ile Ala Pro Glu Gln Pro Leu Gly Asp Lys
 115 120 125

Thr Ile Val Pro Ile Arg Val Thr Ile Ile Asp Pro Asn Gly Arg Pro
 130 135 140

Pro Val Arg Leu Asp Phe Gln Trp Arg Lys Asn Ser Gln Thr Gly Asn
 145 150 155 160

Trp Gln Ala Tyr Asp Met Ile Ala Glu Gly Val Ser Met Ile Thr Thr
 165 170 175

Lys Gln Asn Glu Trp Gly Thr Leu Leu Arg Thr Lys Gly Ile Asp Gly
 180 185 190

Leu Thr Ala Gln Leu Lys Ser Ile Ser Gln Gln Lys Ile Thr Leu Glu
 195 200 205

Glu Lys Lys
 210

<210> 1137

<211> 473
 <212> PRT
 <213> Streptococcus thermophilus

<400> 1137

Met Asn Lys Tyr Lys Lys Leu Leu Ser Asn Ser Leu Val Phe Thr Ile
 1 5 10 15

Gly Asn Leu Gly Ser Lys Leu Leu Val Phe Leu Leu Val Pro Leu Tyr
 20 25 30

Thr Tyr Ala Met Thr Pro Gln Glu Tyr Gly Met Ala Asp Leu Tyr Gln
 35 40 45

Thr Thr Ala Asn Leu Leu Leu Pro Leu Ile Thr Met Asn Val Phe Asp
 50 55 60

Ala Thr Leu Arg Phe Ala Met Glu Lys Ser Met Thr Lys Glu Ser Val
 65 70 75 80

Leu Thr Asn Ser Leu Val Val Trp Cys Phe Ser Ala Val Phe Thr Cys
 85 90 95

Leu Gly Ala Cys Ile Ile Tyr Ala Leu Asn Leu Ser Asn Lys Trp Tyr
 100 105 110

Leu Ala Leu Leu Leu Thr Phe Asn Leu Phe Gln Gly Gly Gln Ser Ile
 115 120 125

Leu Ser Gln Tyr Ala Arg Gly Ile Gly Lys Ser Lys Ile Phe Ala Ala
 130 135 140

Gly Gly Val Ile Leu Thr Phe Leu Thr Gly Ala Leu Asn Ile Leu Phe
 145 150 155 160

Leu Val Tyr Leu Pro Leu Gly Ile Thr Gly Tyr Leu Met Ser Leu Val
 165 170 175

Leu Ala Asn Val Gly Thr Ile Leu Phe Phe Ala Gly Thr Leu Ser Ile
 180 185 190

Trp Lys Glu Ile Ser Phe Lys Ile Ile Asp Lys Lys Leu Ile Trp Gln
 195 200 205

Met Leu Tyr Tyr Ala Leu Pro Leu Ile Pro Ser Ser Ile Leu Trp Trp
 210 215 220

Leu Leu Asn Ala Ser Ser Arg Tyr Phe Val Leu Phe Phe Leu Gly Ala
 225 230 235 240

Gly Ala Asn Gly Leu Leu Ala Val Ala Thr Lys Ile Pro Ser Ile Ile
 245 250 255

Ser Ile Phe Asn Thr Ile Phe Thr Gln Ala Trp Gln Ile Ser Ala Ile
 260 265 270

Glu Glu Tyr Asp Ser His Gln Lys Ser Lys Tyr Tyr Ser Asp Val Phe
 275 280 285

His Tyr Leu Ala Thr Phe Leu Leu Leu Gly Thr Ser Ala Phe Met Ile
 290 295 300

Val Leu Lys Pro Ile Val Glu Lys Val Val Ser Ser Asp Tyr Ala Ser
 305 310 315 320

Ser Trp Gln Tyr Val Pro Phe Phe Met Leu Ser Met Leu Phe Ser Ser
 325 330 335

Phe Ser Asp Phe Phe Gly Thr Asn Tyr Ile Ala Ala Lys Gln Thr Lys
 340 345 350

Gly Val Phe Met Thr Ser Ile Tyr Gly Thr Ile Val Cys Val Leu Leu
 355 360 365

Gln Val Val Leu Leu Pro Ile Ile Gly Leu Asp Gly Ala Gly Leu Ser
 370 375 380

Ala Met Leu Gly Phe Leu Thr Thr Phe Leu Leu Arg Val Lys Asp Thr
 385 390 395 400

Gln Lys Phe Val Val Ile Gln Ile Lys Trp Arg Ile Phe Ile Ser Asn
 405 410 415

Leu Leu Ile Val Leu Ala Gln Ile Leu Cys Leu Phe Tyr Leu Pro Ser
 420 425 430

Glu Phe Leu Tyr Phe Gly Leu Ala Leu Leu Phe Cys Gly Met Leu Val
 435 440 445

Val Asn Gln Arg Thr Ile Leu Tyr Ile Ile Met Ala Leu Lys Ile Lys
 450 455 460

Asn Lys Thr Phe Gly Met Lys Ser Ser
 465 470

<210> 1138
 <211> 306
 <212> PRT
 <213> Haemophilus influenzae

<400> 1138

Met Lys Gln Gln Pro Leu Leu Gly Phe Thr Phe Ala Leu Ile Thr Ala
 1 5 10 15

Met Ala Trp Gly Ser Leu Pro Ile Ala Leu Lys Gln Val Leu Ser Val
 20 25 30

Met Asn Ala Gln Thr Ile Val Trp Tyr Arg Phe Ile Ile Ala Ala Val
 35 40 45

Ser Leu Leu Ala Leu Leu Ala Tyr Lys Lys Gln Leu Pro Glu Leu Met
 50 55 60

Lys Val Arg Gln Tyr Ala Trp Ile Met Leu Ile Gly Val Ile Gly Leu
 65 70 75 80

Thr Ser Asn Phe Leu Leu Phe Ser Ser Ser Leu Asn Tyr Ile Glu Pro
 85 90 95

Ser Val Ala Gln Ile Phe Ile His Leu Ser Ser Phe Gly Met Leu Ile
 100 105 110

Cys Gly Val Leu Ile Phe Lys Glu Lys Leu Gly Leu His Gln Lys Ile
 115 120 125

Gly Leu Phe Leu Leu Leu Ile Gly Leu Gly Leu Phe Phe Asn Asp Arg
 130 135 140

Phe Asp Ala Phe Ala Gly Leu Asn Gln Tyr Ser Thr Gly Val Ile Leu
 145 150 155 160

Gly Val Gly Gly Ala Leu Ile Trp Val Ala Tyr Gly Met Ala Gln Lys
165 170 175

Leu Met Leu Arg Lys Phe Asn Ser Gln Gln Ile Leu Leu Met Met Tyr
180 185 190

Leu Gly Cys Ala Ile Ala Phe Met Pro Met Ala Asp Phe Ser Gln Val
195 200 205

Gln Glu Leu Thr Pro Leu Ala Leu Ile Cys Phe Ile Tyr Cys Cys Leu
210 215 220

Asn Thr Leu Ile Gly Tyr Gly Ser Tyr Ala Glu Ala Leu Asn Arg Trp
225 230 235 240

Asp Val Ser Lys Val Ser Val Val Ile Thr Leu Val Pro Leu Phe Thr
245 250 255

Ile Leu Phe Ser His Ile Ala His Tyr Phe Ser Pro Ala Asp Phe Ala
260 265 270

Ala Pro Glu Leu Asn Asn Ile Ser Tyr Ile Gly Ala Phe Val Val Val
275 280 285

Cys Gly Ala Ile Leu Ser Ala Ile Gly His Lys Leu Leu Pro His Lys
290 295 300

Asn His
305

<210> 1139
<211> 569
<212> PRT
<213> Schizosaccharomyces pombe

<400> 1139

Met Ala Met Ser Ser Ile Thr Ser Ala Lys Gln Leu Asn Ala Glu Glu
1 5 10 15

Leu Leu Asp Glu Cys Asp Ser Phe Asn Gly Glu Phe Val Pro Gly Thr
20 25 30

Ile Pro Phe Arg Ala Asn Gly Ala Ala Ile Gly Tyr Val Thr Pro Leu
 35 40 45

Val Leu Glu Ile Leu Ile Lys Ala Asp Asn Phe Lys Phe Asn Trp Val
 50 55 60

Tyr Val Pro Gly Glu Tyr Ile Glu Ile Asn Ala Ser Thr Phe Glu Lys
 65 70 75 80

Arg Thr Asp Ile Leu Ala Lys Val Leu Glu His Trp Arg His Asn Asn
 85 90 95

Thr Phe Gly Ile Ala Asp Gln Trp Arg Asn Glu Leu Tyr Thr Val Tyr
 100 105 110

Gly Lys Ser Lys Lys Pro Val Leu Ala Val Glu Arg Gly Gly Phe Trp
 115 120 125

Leu Phe Gly Phe Leu Ser Thr Gly Val His Cys Thr Met Tyr Ile Pro
 130 135 140

Ala Thr Lys Glu His Pro Leu Arg Ile Trp Val Pro Arg Arg Ser Pro
 145 150 155 160

Thr Lys Gln Thr Trp Pro Asn Tyr Leu Asp Asn Ser Val Ala Gly Gly
 165 170 175

Ile Ala His Gly Asp Ser Val Ile Gly Thr Met Ile Lys Glu Phe Ser
 180 185 190

Glu Glu Ala Asn Leu Asp Val Ser Ser Met Asn Leu Ile Pro Cys Gly
 195 200 205

Thr Val Ser Tyr Ile Lys Met Glu Lys Arg His Trp Ile Gln Pro Glu
 210 215 220

Leu Gln Tyr Val Phe Asp Leu Pro Val Asp Asp Leu Val Ile Pro Arg
 225 230 235 240

Ile Asn Asp Gly Glu Val Ala Gly Phe Ser Leu Leu Pro Leu Asn Gln
 245 250 255

Val Leu His Glu Leu Glu Leu Lys Ser Phe Lys Pro Asn Cys Ala Leu

260	265	270
Val Leu Leu Asp Phe Leu Ile Arg His Gly Ile Ile Thr Pro Gln His		
275	280	285
Pro Gln Tyr Leu Gln Thr Leu Glu Arg Ile His Arg Pro Leu Pro Val		
290	295	300
Pro Val Gly Lys Tyr Glu Arg Gly Asp Ser Phe Glu Asp Thr Ser Lys		
305	310	315 320
Lys Ala Glu Thr Cys Val Pro Ala Lys Pro Gln Lys Ala Thr His Gln		
325	330	335
Leu Ala Pro Cys Lys Ala Trp Leu Arg Asp Tyr Asp Thr Asp Gln Lys		
340	345	350
Phe Ala Val Leu Leu Leu Asn Gln Pro Ile Asp Ile Pro Asp Asp Arg		
355	360	365
Phe Arg Thr Leu Trp Lys Arg Ala Ser Ile Arg Val Cys Ala Asp Gly		
370	375	380
Gly Ala Asn Gln Leu Arg Asn Tyr Asp Ser Ser Leu Lys Pro Asp Tyr		
385	390	395 400
Val Val Gly Asp Phe Asp Ser Leu Thr Asp Glu Thr Lys Ala Tyr Tyr		
405	410	415
Lys Glu Met Gly Val Asn Ile Val Phe Asp Pro Cys Gln Asn Thr Thr		
420	425	430
Asp Phe Met Lys Cys His Lys Ile Ile Lys Glu His Gly Ile Asp Thr		
435	440	445
Ile Phe Val Leu Cys Gly Met Gly Gly Arg Val Asp His Ala Ile Gly		
450	455	460
Asn Leu Asn His Leu Phe Trp Ala Ala Ser Ile Ser Glu Lys Asn Glu		
465	470	475 480
Val Phe Leu Leu Thr Glu Leu Asn Val Ser Thr Leu Leu Gln Pro Gly		
485	490	495

Ile Asn His Val Asp Cys His Asp Asn Ile Gly Leu His Cys Gly Leu
500 505 510

Leu Pro Val Gly Gln Ser Val Tyr Val Lys Lys Thr Ser Gly Leu Glu
515 520 525

Trp Asn Ile Glu Asp Arg Ile Cys Gln Phe Gly Gly Leu Val Ser Ser
530 535 540

Cys Asn Val Val Thr Lys Ala Thr Val Thr Ile Glu Val Asn Asn Phe
545 550 555 560

Ile Val Trp Thr Met Glu Thr Arg Leu
565

<210> 1140

<211> 261

<212> PRT

<213> Pseudomonas denitrificans

<400> 1140

Met Gln Asp Leu Ala Phe His Leu Leu Ala Phe Leu Phe Val Ala Ala
1 5 10 15

Phe Ile Ala Gly Phe Ile Asp Ser Ile Ala Gly Gly Gly Gly Met Ile
20 25 30

Thr Ile Pro Ala Met Leu Ile Ala Gly Ile Pro Pro Leu Gln Thr Leu
35 40 45

Gly Thr Asn Lys Leu Gln Gly Leu Phe Gly Ser Gly Ser Ala Thr Leu
50 55 60

Ser Tyr Ala Arg Arg Gly His Val Asn Leu Lys Glu Gln Leu Pro Met
65 70 75 80

Ala Leu Met Ser Ala Ala Gly Ala Val Leu Gly Ala Leu Leu Ala Thr
85 90 95

Ile Val Pro Gly Asp Val Leu Lys Ala Ile Leu Pro Phe Leu Leu Ile
100 105 110

Ala Ile Ala Leu Tyr Phe Gly Leu Lys Pro Asn Met Gly Asp Val Asp
 115 120 125

Gln His Ser Arg Val Thr Pro Phe Val Phe Thr Leu Thr Leu Val Pro
 130 135 140

Leu Ile Gly Phe Tyr Asp Gly Val Phe Gly Pro Gly Thr Gly Ser Phe
 145 150 155 160

Phe Met Leu Gly Phe Val Thr Leu Ala Gly Phe Gly Val Leu Lys Ala
 165 170 175

Thr Ala His Thr Lys Phe Leu Asn Phe Gly Ser Asn Val Gly Ala Phe
 180 185 190

Gly Val Phe Leu Phe Phe Gly Ala Val Leu Trp Lys Val Gly Leu Leu
 195 200 205

Met Gly Leu Gly Gln Phe Leu Gly Ala Gln Val Gly Ser Arg Tyr Ala
 210 215 220

Met Ala Lys Gly Ala Lys Ile Ile Lys Pro Leu Leu Val Ile Val Ser
 225 230 235 240

Ile Ala Leu Ala Ile Arg Leu Leu Ala Asp Pro Thr His Pro Leu Arg
 245 250 255

Ile Trp Leu Gly His
 260

<210> 1141
 <211> 346
 <212> PRT
 <213> Haemophilus influenzae

<400> 1141

Met Lys Lys Leu Ile Ser Gly Ile Ile Ala Val Ala Met Ala Leu Ser
 1 5 10 15

Leu Ala Ala Cys Gln Lys Glu Thr Lys Val Ile Ser Leu Ser Gly Lys
 20 25 30

Thr Met Gly Thr Thr Tyr His Val Lys Tyr Leu Asp Asp Gly Ser Ile
 35 40 45

Thr Ala Thr Ser Glu Lys Thr His Glu Glu Ile Glu Ala Ile Leu Lys
50 55 60

Asp Val Asn Ala Lys Met Ser Thr Tyr Lys Lys Asp Ser Glu Leu Ser
65 70 75 80

Arg Phe Asn Gln Asn Thr Gln Val Asn Thr Pro Ile Glu Ile Ser Ala
85 90 95

Asp Phe Ala Lys Val Leu Ala Glu Ala Ile Arg Leu Asn Lys Val Thr
100 105 110

Glu Gly Ala Leu Asp Val Thr Val Gly Pro Val Val Asn Leu Trp Gly
115 120 125

Phe Gly Pro Glu Lys Arg Pro Glu Lys Gln Pro Thr Pro Glu Gln Leu
130 135 140

Ala Glu Arg Gln Ala Trp Val Gly Ile Asp Lys Ile Thr Leu Asp Thr
145 150 155 160

Asn Lys Glu Lys Ala Thr Leu Ser Lys Ala Leu Pro Gln Val Tyr Val
165 170 175

Asp Leu Ser Ser Ile Ala Lys Gly Phe Gly Val Asp Gln Val Ala Glu
180 185 190

Lys Leu Glu Gln Leu Asn Ala Gln Asn Tyr Met Val Glu Ile Gly Gly
195 200 205

Glu Ile Arg Ala Lys Gly Lys Asn Ile Glu Gly Lys Pro Trp Gln Ile
210 215 220

Ala Ile Glu Lys Pro Thr Thr Thr Gly Glu Arg Ala Val Glu Ala Val
225 230 235 240

Ile Gly Leu Asn Asn Met Gly Met Ala Ser Ser Gly Asp Tyr Arg Ile
245 250 255

Tyr Phe Glu Glu Asn Gly Lys Arg Phe Ala His Glu Ile Asp Pro Lys
260 265 270

Thr Gly Tyr Pro Ile Gln His His Leu Ala Ser Ile Thr Val Leu Ala
 275 280 285

Pro Thr Ser Met Thr Ala Asp Gly Leu Ser Thr Gly Leu Phe Val Leu
 290 295 300

Gly Glu Asp Lys Ala Leu Glu Val Ala Glu Lys Asn Asn Leu Ala Val
 305 310 315 320

Tyr Leu Ile Ile Arg Thr Asp Asn Gly Phe Val Thr Lys Ser Ser Ser
 325 330 335

Ala Phe Lys Lys Leu Thr Glu Thr Lys Glu
 340 345

<210> 1142
 <211> 1329
 <212> PRT
 <213> Escherichia coli

<400> 1142

Met Ser Gln Glu Tyr Ile Glu Asp Lys Glu Val Thr Leu Thr Lys Leu
 1 5 10 15

Ser Ser Gly Arg Arg Leu Leu Glu Ala Leu Leu Ile Leu Ile Val Leu
 20 25 30

Phe Ala Val Trp Leu Met Ala Ala Leu Leu Ser Phe Asn Pro Ser Asp
 35 40 45

Pro Ser Trp Ser Gln Thr Ala Trp His Glu Pro Ile His Asn Leu Gly
 50 55 60

Gly Met Pro Gly Ala Trp Leu Ala Asp Thr Leu Phe Phe Ile Phe Gly
 65 70 75 80

Val Met Ala Tyr Thr Ile Pro Val Ile Ile Val Gly Gly Cys Trp Phe
 85 90 95

Ala Trp Arg His Gln Ser Ser Asp Glu Tyr Ile Asp Tyr Phe Ala Val
 100 105 110

Ser Leu Arg Ile Ile Gly Val Leu Ala Leu Ile Leu Thr Ser Cys Gly

115	120	125
Leu Ala Ala Ile Asn Ala Asp Asp Ile Trp Tyr Phe Ala Ser Gly Gly		
130	135	140
Val Ile Gly Ser Leu Leu Ser Thr Thr Leu Gln Pro Leu Leu His Ser		
145	150	155 160
Ser Gly Gly Thr Ile Ala Leu Leu Cys Val Trp Ala Ala Gly Leu Thr		
	165	170 175
Leu Phe Thr Gly Trp Ser Trp Val Thr Ile Ala Glu Lys Leu Gly Gly		
	180	185 190
Trp Ile Leu Asn Ile Leu Thr Phe Ala Ser Asn Arg Thr Arg Arg Asp		
	195	200 205
Asp Thr Trp Val Asp Glu Asp Glu Tyr Glu Asp Asp Glu Glu Tyr Glu		
	210	215 220
Asp Glu Asn His Gly Lys Gln His Glu Ser Arg Arg Ala Arg Ile Leu		
225	230	235 240
Arg Gly Ala Leu Ala Arg Arg Lys Arg Leu Ala Glu Lys Phe Ile Asn		
	245	250 255
Pro Met Gly Arg Gln Thr Asp Ala Ala Leu Phe Ser Gly Lys Arg Met		
	260	265 270
Asp Asp Asp Glu Glu Ile Thr Tyr Thr Ala Arg Gly Val Ala Ala Asp		
	275	280 285
Pro Asp Asp Val Leu Phe Ser Gly Asn Arg Ala Thr Gln Pro Glu Tyr		
	290	295 300
Asp Glu Tyr Asp Pro Leu Leu Asn Gly Ala Pro Ile Thr Glu Pro Val		
305	310	315 320
Ala Val Ala Ala Ala Ala Thr Thr Ala Thr Gln Ser Trp Ala Ala Pro		
	325	330 335
Val Glu Pro Val Thr Gln Thr Pro Pro Val Ala Ser Val Asp Val Pro		
	340	345 350

Pro Ala Gln Pro Thr Val Ala Trp Gln Pro Val Pro Gly Pro Gln Thr
 355 360 365

Gly Glu Pro Val Ile Ala Pro Ala Pro Glu Gly Tyr Pro Gln Gln Ser
 370 375 380

Gln Tyr Ala Gln Pro Ala Val Gln Tyr Asn Glu Pro Leu Gln Gln Pro
 385 390 395 400

Val Gln Pro Gln Gln Pro Tyr Tyr Ala Pro Ala Ala Glu Gln Pro Ala
 405 410 415

Gln Gln Pro Tyr Tyr Ala Pro Ala Pro Glu Gln Pro Val Ala Gly Asn
 420 425 430

Ala Trp Gln Ala Glu Glu Gln Gln Ser Thr Phe Ala Pro Gln Ser Thr
 435 440 445

Tyr Gln Thr Glu Gln Thr Tyr Gln Gln Pro Ala Ala Gln Glu Pro Leu
 450 455 460

Tyr Gln Gln Pro Gln Pro Val Glu Gln Gln Pro Val Val Glu Pro Glu
 465 470 475 480

Pro Val Val Glu Glu Thr Lys Pro Ala Arg Pro Pro Leu Tyr Tyr Phe
 485 490 495

Glu Glu Val Glu Glu Lys Arg Ala Arg Glu Arg Glu Gln Leu Ala Ala
 500 505 510

Trp Tyr Gln Pro Ile Pro Glu Pro Val Lys Glu Pro Glu Pro Ile Lys
 515 520 525

Ser Ser Leu Lys Ala Pro Ser Val Ala Ala Val Pro Pro Val Glu Ala
 530 535 540

Ala Ala Ala Val Ser Pro Leu Ala Ser Gly Val Lys Lys Ala Thr Leu
 545 550 555 560

Ala Thr Gly Ala Ala Ala Thr Val Ala Ala Pro Val Phe Ser Leu Ala
 565 570 575

Asn Ser Gly Gly Pro Arg Pro Gln Val Lys Glu Gly Ile Gly Pro Gln
580 585 590

Leu Pro Arg Pro Lys Arg Ile Arg Val Pro Thr Arg Arg Glu Leu Ala
595 600 605

Ser Tyr Gly Ile Lys Leu Pro Ser Gln Arg Ala Ala Glu Glu Lys Ala
610 615 620

Arg Glu Ala Gln Arg Asn Gln Tyr Asp Ser Gly Asp Gln Tyr Asn Asp
625 630 635 640

Asp Glu Ile Asp Ala Met Gln Gln Asp Glu Leu Ala Arg Gln Phe Ala
645 650 655

Gln Thr Gln Gln Gln Arg Tyr Gly Glu Gln Tyr Gln His Asp Val Pro
660 665 670

Val Asn Ala Glu Asp Ala Asp Ala Ala Ala Glu Ala Glu Leu Ala Arg
675 680 685

Gln Phe Ala Gln Thr Gln Gln Gln Arg Tyr Ser Gly Glu Gln Pro Ala
690 695 700

Gly Ala Asn Pro Phe Ser Leu Asp Asp Phe Glu Phe Ser Pro Met Lys
705 710 715 720

Ala Leu Leu Asp Asp Gly Pro His Glu Pro Leu Phe Thr Pro Ile Val
725 730 735

Glu Pro Val Gln Gln Pro Gln Gln Pro Val Ala Pro Gln Gln Gln Tyr
740 745 750

Gln Gln Pro Gln Gln Pro Val Pro Pro Gln Pro Gln Tyr Gln Gln Pro
755 760 765

Gln Gln Pro Val Ala Pro Gln Pro Gln Tyr Gln Gln Pro Gln Gln Pro
770 775 780

Val Ala Pro Gln Gln Gln Tyr Gln Gln Pro Gln Gln Pro Val Ala Pro
785 790 795 800

Gln Gln Gln Tyr Gln Gln Pro Gln Gln Pro Val Ala Pro Gln Pro Gln
805 810 815

Asp Thr Leu Leu His Pro Leu Leu Met Arg Asn Gly Asp Ser Arg Pro
820 825 830

Leu His Lys Pro Thr Thr Pro Leu Pro Ser Leu Asp Leu Leu Thr Pro
835 840 845

Pro Pro Ser Glu Val Glu Pro Val Asp Thr Phe Ala Leu Glu Gln Met
850 855 860

Ala Arg Leu Val Glu Ala Arg Leu Ala Asp Phe Arg Ile Lys Ala Asp
865 870 875 880

Val Val Asn Tyr Ser Pro Gly Pro Val Ile Thr Arg Phe Glu Leu Asn
885 890 895

Leu Ala Pro Gly Val Lys Ala Ala Arg Ile Ser Asn Leu Ser Arg Asp
900 905 910

Leu Ala Arg Ser Leu Ser Thr Val Ala Val Arg Val Val Glu Val Ile
915 920 925

Pro Gly Lys Pro Tyr Val Gly Leu Glu Leu Pro Asn Lys Lys Arg Gln
930 935 940

Thr Val Tyr Leu Arg Glu Val Leu Asp Asn Ala Lys Phe Arg Asp Asn
945 950 955 960

Pro Ser Pro Leu Thr Val Val Leu Gly Lys Asp Ile Ala Gly Glu Pro
965 970 975

Val Val Ala Asp Leu Ala Lys Met Pro His Leu Leu Val Ala Gly Thr
980 985 990

Thr Gly Ser Gly Lys Ser Val Gly Val Asn Ala Met Ile Leu Ser Met
995 1000 1005

Leu Tyr Lys Ala Gln Pro Glu Asp Val Arg Phe Ile Met Ile Asp
1010 1015 1020

Pro Lys Met Leu Glu Leu Ser Val Tyr Glu Gly Ile Pro His Leu

1025		1030		1035
Leu Thr Glu Val Val Thr Asp Met Lys Asp Ala Ala Asn Ala Leu				
1040		1045		1050
Arg Trp Cys Val Asn Glu Met Glu Arg Arg Tyr Lys Leu Met Ser				
1055		1060		1065
Ala Leu Gly Val Arg Asn Leu Ala Gly Tyr Asn Glu Lys Ile Ala				
1070		1075		1080
Glu Ala Asp Arg Met Met Arg Pro Ile Pro Asp Pro Tyr Trp Lys				
1085		1090		1095
Pro Gly Asp Ser Met Asp Ala Gln His Pro Val Leu Lys Lys Glu				
1100		1105		1110
Pro Tyr Ile Val Val Leu Val Asp Glu Phe Ala Asp Leu Met Met				
1115		1120		1125
Thr Val Gly Lys Lys Val Glu Glu Leu Ile Ala Arg Leu Ala Gln				
1130		1135		1140
Lys Ala Arg Ala Ala Gly Ile His Leu Val Leu Ala Thr Gln Arg				
1145		1150		1155
Pro Ser Val Asp Val Ile Thr Gly Leu Ile Lys Ala Asn Ile Pro				
1160		1165		1170
Thr Arg Ile Ala Phe Thr Val Ser Ser Lys Ile Asp Ser Arg Thr				
1175		1180		1185
Ile Leu Asp Gln Ala Gly Ala Glu Ser Leu Leu Gly Met Gly Asp				
1190		1195		1200
Met Leu Tyr Ser Gly Pro Asn Ser Thr Leu Pro Val Arg Val His				
1205		1210		1215
Gly Ala Phe Val Arg Asp Gln Glu Val His Ala Val Val Gln Asp				
1220		1225		1230
Trp Lys Ala Arg Gly Arg Pro Gln Tyr Val Asp Gly Ile Thr Ser				
1235		1240		1245

Asp Ser Glu Ser Glu Gly Gly Ala Gly Gly Phe Asp Gly Ala Glu
1250 1255 1260

Glu Leu Asp Pro Leu Phe Asp Gln Ala Val Gln Phe Val Thr Glu
1265 1270 1275

Lys Arg Lys Ala Ser Ile Ser Gly Val Gln Arg Gln Phe Arg Ile
1280 1285 1290

Gly Tyr Asn Arg Ala Ala Arg Ile Ile Glu Gln Met Glu Ala Gln
1295 1300 1305

Gly Ile Val Ser Glu Gln Gly His Asn Gly Asn Arg Glu Val Leu
1310 1315 1320

Ala Pro Pro Pro Phe Asp
1325

<210> 1143
<211> 2273
<212> PRT
<213> Neisseria meningitidis

<400> 1143

Met Asn Lys Arg Cys Tyr Lys Val Ile Phe Asn Lys Lys Arg Ser Cys
1 5 10 15

Met Met Ala Val Ala Glu Asn Val His Arg Asp Gly Lys Ser Met Gln
20 25 30

Asp Ser Glu Ala Ala Ser Val Arg Val Thr Gly Ala Ala Ser Val Ser
35 40 45

Ser Ala Arg Ala Ala Phe Gly Phe Arg Met Ala Ala Phe Ser Val Met
50 55 60

Leu Ala Leu Gly Val Ala Ala Phe Ser Pro Ala Pro Ala Ser Gly Ile
65 70 75 80

Ile Ala Asp Lys Ser Ala Pro Lys Asn Gln Gln Ala Val Ile Leu Gln
85 90 95

Thr Ala Asn Gly Leu Pro Gln Val Asn Ile Gln Thr Pro Ser Ser Gln
 100 105 110

Gly Val Ser Val Asn Arg Phe Lys Gln Phe Asp Val Asp Glu Lys Gly
 115 120 125

Val Ile Leu Asn Asn Ser Arg Ser Asn Thr Gln Thr Gln Leu Gly Gly
 130 135 140

Trp Ile Gln Gly Asn Pro His Leu Ala Arg Gly Glu Ala Arg Val Ile
 145 150 155 160

Val Asn Gln Ile Asp Ser Ser Asn Pro Ser Leu Leu Asn Gly Tyr Ile
 165 170 175

Glu Val Gly Gly Lys Arg Ala Glu Val Val Val Ala Asn Pro Ser Gly
 180 185 190

Ile Arg Val Asn Gly Gly Gly Leu Ile Asn Ala Ala Ser Val Thr Leu
 195 200 205

Thr Ser Gly Val Pro Val Leu Asn Asn Gly Asn Leu Thr Gly Phe Asp
 210 215 220

Val Ser Ser Gly Lys Val Val Ile Gly Gly Lys Gly Leu Asp Thr Ser
 225 230 235 240

Asp Ala Asp Tyr Thr Arg Ile Leu Ser Arg Ala Ala Glu Ile Asn Ala
 245 250 255

Gly Val Trp Gly Lys Asp Val Lys Val Val Ser Gly Lys Asn Lys Leu
 260 265 270

Asp Phe Asp Gly Ser Leu Ala Lys Thr Ala Ser Ala Pro Ser Ser Ser
 275 280 285

Asp Ser Val Thr Pro Thr Val Ala Ile Asp Thr Ala Thr Leu Gly Gly
 290 295 300

Met Tyr Ala Asp Lys Ile Thr Leu Ile Ser Thr Asp Asn Gly Ala Val
 305 310 315 320

Ile Arg Asn Lys Gly Arg Ile Phe Ala Ala Thr Gly Gly Val Thr Leu

325	330	335
Ser Ala Asp Gly Lys Leu Ser Asn Ser Gly Ser Ile Asp Ala Ala Glu 340 345 350		
Ile Thr Ile Ser Ala Gln Thr Val Asp Asn Arg Gln Gly Phe Ile Arg 355 360 365		
Ser Gly Lys Gly Ser Val Leu Lys Val Ser Asp Gly Ile Asn Asn Gln 370 375 380		
Ala Gly Leu Ile Gly Ser Ala Gly Leu Leu Asp Ile Arg Asp Thr Gly 385 390 395 400		
Lys Ser Ser Leu His Ile Asn Asn Thr Asp Gly Thr Ile Ile Ala Gly 405 410 415		
Lys Asp Val Ser Leu Gln Ala Lys Ser Leu Asp Asn Asp Gly Ile Leu 420 425 430		
Thr Ala Ala Arg Asp Val Ser Val Ser Leu His Asp Asp Phe Ala Gly 435 440 445		
Lys Arg Asp Ile Glu Ala Gly Arg Thr Leu Thr Phe Ser Thr Gln Gly 450 455 460		
Arg Leu Lys Asn Thr Arg Ile Ile Gln Ala Gly Asp Thr Val Ser Leu 465 470 475 480		
Thr Ala Ala Gln Ile Asp Asn Thr Val Ser Gly Lys Ile Gln Ser Gly 485 490 495		
Asn Arg Thr Gly Leu Asn Gly Lys Asn Gly Ile Thr Asn Arg Gly Leu 500 505 510		
Ile Asn Ser Asn Gly Ile Thr Leu Leu Gln Thr Glu Ala Lys Ser Asp 515 520 525		
Asn Ala Gly Thr Gly Arg Ile Tyr Gly Ser Arg Val Ala Val Glu Ala 530 535 540		
Asp Thr Leu Leu Asn Arg Glu Glu Thr Val Asn Gly Glu Thr Lys Ala 545 550 555 560		

Ala Val Ile Ala Ala Arg Glu Arg Leu Asp Ile Gly Ala Arg Glu Ile
565 570 575

Glu Asn Arg Glu Ala Ala Leu Leu Ser Ser Ser Gly Asp Leu His Ile
580 585 590

Gly Ser Ala Leu Asn Gly Ser Arg Gln Val Gln Gly Ala Asn Thr Ser
595 600 605

Leu His Asn Arg Ser Ala Ala Ile Glu Ser Ser Gly Asn Ile Arg Ile
610 615 620

Ala Thr Lys Asp Leu Gln Asn Thr Asn Glu His Leu Arg Phe His Thr
625 630 635 640

Glu Glu Thr His Arg Glu His Arg Ile Glu Tyr Gln Ala Glu Gly Arg
645 650 655

Thr Glu Arg Tyr Pro Glu Gly Ser Gln Lys Glu Leu Gly Trp Glu Ile
660 665 670

Phe Glu Asp Glu Ser Leu His Met Arg Thr Pro Asp Gly Ser Pro His
675 680 685

Ser Val Trp Tyr Lys Tyr Asp Tyr Glu Arg Ile Thr Ala Glu Ser Lys
690 695 700

Ile Thr Glu Ser Lys Pro Gly Gln Ile Ile Ser Gly Gly Asn Leu Val
705 710 715 720

Leu Asp Ala Ala Lys Leu Lys Asn His Asn Ser Arg Ile Ile Ala Gly
725 730 735

Gly Arg Leu Ile Val Gly Thr Pro Glu Ser Ala Leu Asp Asn Asp Glu
740 745 750

Thr Leu Gly Thr Lys Thr Ile Thr Asp Lys Gly Asp Leu His Arg Tyr
755 760 765

His Arg His His Lys Lys Gly Arg Asp Ser Thr Gly Tyr Ser Arg Ser
770 775 780

Pro Tyr Glu Pro Ala Pro Glu Val Ser Ser Ile Arg Met Gly Ile Ser
 785 790 795 800

Ala Tyr Lys Gly Tyr Ala Pro Gln Gln Ala Ser Asp Ile Pro Gly Thr
 805 810 815

Val Val Pro Val Val Ala Glu Asn Gly Ile His Pro Thr Phe Thr Leu
 820 825 830

Pro Asn Ser Ser Leu Phe Ala Ile Ala Pro Asn Asn Lys Gly Tyr Leu
 835 840 845

Ile Glu Thr Asp Pro Ala Phe Thr Asp Tyr Arg Lys Trp Leu Gly Ser
 850 855 860

Gly Tyr Met Leu Ala Ala Leu Gln Gln Asp Pro Asn His Ile His Lys
 865 870 875 880

Arg Leu Gly Asp Gly Tyr Tyr Glu Gln Lys Leu Val Asn Glu Gln Ile
 885 890 895

Ala Lys Leu Thr Gly Tyr Arg Arg Leu Asp Gly Tyr Thr Asn Asp Glu
 900 905 910

Glu Gln Phe Lys Ala Leu Met Asp Asn Gly Ile Thr Ile Ala Lys Glu
 915 920 925

Leu Gln Leu Thr Pro Gly Ile Ala Leu Ser Ala Glu Gln Val Ala Arg
 930 935 940

Leu Thr Ser Asp Ile Val Trp Leu Glu Asn Glu Thr Val Thr Leu Pro
 945 950 955 960

Asp Gly Thr Thr Gln Thr Val Leu Lys Pro Lys Val Tyr Val Arg Ala
 965 970 975

Arg Pro Lys Asp Met Asn Gly Gln Gly Ala Leu Leu Ser Gly Ser Val
 980 985 990

Val Asp Ile Gly Ser Gly Ala Ile Glu Asn Arg Gly Gly Leu Ile Ala
 995 1000 1005

Gly Arg Glu Ala Leu Ile Leu Asn Ala Gln Asn Ile Lys Asn Leu
 1010 1015 1020

Gln Gly Asp Leu Gln Gly Lys Asn Ile Phe Ala Ala Ala Gly Ser
 1025 1030 1035

Asp Ile Thr Asn Thr Gly Ser Ile Gly Ala Glu Asn Ala Leu Leu
 1040 1045 1050

Leu Lys Ala Ser Asn Asn Ile Glu Ser Arg Ser Glu Thr Arg Ser
 1055 1060 1065

Asn Gln Asn Glu Gln Gly Ser Val Arg Asn Ile Gly Arg Val Ala
 1070 1075 1080

Gly Ile Tyr Leu Thr Gly Arg Gln Asn Gly Ser Val Leu Leu Asp
 1085 1090 1095

Ala Gly Asn Asn Ile Val Leu Thr Ala Ser Glu Leu Thr Asn Gln
 1100 1105 1110

Ser Glu Asp Gly Gln Thr Val Leu Asn Ala Gly Gly Asp Ile Arg
 1115 1120 1125

Ser Asp Thr Thr Gly Ile Ser Arg Asn Gln Asn Thr Ile Phe Asp
 1130 1135 1140

Ser Asp Asn Tyr Val Ile Arg Lys Glu Gln Asn Glu Val Gly Ser
 1145 1150 1155

Thr Ile Arg Thr Arg Gly Asn Leu Ser Leu Asn Ala Lys Gly Asp
 1160 1165 1170

Ile Arg Ile Arg Ala Ala Glu Val Gly Ser Glu Gln Gly Arg Leu
 1175 1180 1185

Lys Leu Ala Ala Gly Arg Asp Ile Lys Val Glu Ala Gly Lys Ala
 1190 1195 1200

His Thr Glu Thr Glu Asp Ala Leu Lys Tyr Thr Gly Arg Ser Gly
 1205 1210 1215

Gly Gly Ile Lys Gln Lys Met Thr Arg His Leu Lys Asn Gln Asn

1220		1225		1230
Gly Gln Ala Val Ser Gly Thr Leu Asp Gly Lys Glu Ile Ile Leu				
1235		1240		1245
Val Ser Gly Arg Asp Ile Thr Val Thr Gly Ser Asn Ile Ile Ala				
1250		1255		1260
Asp Asn His Thr Ile Leu Ser Ala Lys Asn Asn Ile Val Leu Lys				
1265		1270		1275
Ala Ala Glu Thr Arg Ser Arg Ser Ala Glu Met Asn Lys Lys Glu				
1280		1285		1290
Lys Ser Gly Leu Met Gly Ser Gly Gly Ile Gly Phe Thr Ala Gly				
1295		1300		1305
Ser Lys Lys Asp Thr Gln Thr Asn Arg Ser Glu Thr Val Ser His				
1310		1315		1320
Thr Glu Ser Val Val Gly Ser Leu Asn Gly Asn Thr Leu Ile Ser				
1325		1330		1335
Ala Gly Lys His Tyr Thr Gln Thr Gly Ser Thr Ile Ser Ser Pro				
1340		1345		1350
Gln Gly Asp Val Gly Ile Ser Ser Gly Lys Ile Ser Ile Asp Ala				
1355		1360		1365
Ala Gln Asn Arg Tyr Ser Gln Glu Ser Lys Gln Val Tyr Glu Gln				
1370		1375		1380
Lys Gly Val Thr Val Ala Ile Ser Val Pro Val Val Asn Thr Val				
1385		1390		1395
Met Gly Ala Val Asp Ala Val Lys Ala Val Gln Thr Val Gly Lys				
1400		1405		1410
Ser Lys Asn Ser Arg Val Asn Ala Met Ala Ala Ala Asn Ala Leu				
1415		1420		1425
Asn Lys Gly Val Asp Ser Gly Val Ala Leu Tyr Asn Ala Ala Arg				
1430		1435		1440

Ser Asp Tyr Ala Ser Val Asn Glu Gln Ser Gly Ile Phe Ala Gly
 1655 1660 1665

Gly Asp Gly Tyr Arg Ile Arg Val Asn Gly Lys Thr Gly Leu Val
 1670 1675 1680

Gly Ala Ala Val Val Ser Asp Ala Asp Lys Ser Lys Asn Leu Leu
 1685 1690 1695

Lys Thr Ser Glu Ile Trp His Lys Asp Ile Gln Asn His Ala Ser
 1700 1705 1710

Ala Ala Ala Ser Ala Leu Gly Leu Ser Gly Gly Phe Ser Tyr Ser
 1715 1720 1725

Pro Lys Pro Thr Ser Gly Gln Tyr Ser Thr Lys Lys Glu Ala Glu
 1730 1735 1740

Ile Gly Lys Ile Gly Gly Lys Pro Val Ser Leu Met Arg Phe Asp
 1745 1750 1755

Gln Val Ser Ala Lys Asp Asp Glu Leu Asn Glu Lys Tyr Arg Ser
 1760 1765 1770

Glu Arg Ile Glu Lys Gly Glu Thr Phe Lys Glu Ala Asn Leu Asn
 1775 1780 1785

Gln Asn Asn Ala Gly Gly Leu Lys Phe Gly Leu Lys Gln Asn Asp
 1790 1795 1800

Ile His Ser Asn Asp Lys Tyr Ala Leu Ala Lys Met Gly Leu Gly
 1805 1810 1815

Asn Leu Leu Gly Asn Ala Lys Glu Ser Glu Ser Arg Gln Ser Ile
 1820 1825 1830

Thr Arg Ser Val Ile Ser Glu Gly Asp Trp Gln Ile Ala Ser Ala
 1835 1840 1845

Gln Gly Arg Lys Asn Ile Ala Gly Ile Glu Lys Gly Thr Ser Ser
 1850 1855 1860

Ala His Lys Ala Leu Ala Lys Ala Asp Arg Glu Gly Leu Leu Lys
 1865 1870 1875

Glu Val Glu Leu Asn Arg Asp Val Ala Lys Glu Phe Ile Asn Glu
 1880 1885 1890

Thr Leu Ile Gly Gly Ile Ala Asp Glu Ala Tyr Arg Ser Gln Phe
 1895 1900 1905

Ile Ala Glu His Arg Leu Met Thr Phe Lys Met Asp Glu Asn Gly
 1910 1915 1920

Glu Pro Ile Glu Asp Lys Gln Leu Glu Glu Asp Ile Asn Lys Gln
 1925 1930 1935

Phe Asp Asn Ser Val Lys Leu Lys Lys Glu Phe Ala Ser Phe Lys
 1940 1945 1950

Asp Tyr Trp Glu Ala Tyr Lys Ala Ile Gly Gly Asn Ile Tyr Glu
 1955 1960 1965

Leu Arg Glu Val Ser Asp Gln Glu Arg Lys Asn Leu Lys Thr Ala
 1970 1975 1980

Arg Tyr Thr Asp Pro Glu Thr Gly Lys Thr Val Glu Lys Ile Val
 1985 1990 1995

Val Gly Val Asn Gly Ile Phe Asn Asn Ile Gln Ala Ala Ala Lys
 2000 2005 2010

Phe Ala Ala Gln Gln Tyr Val Gly Arg Phe Asn Pro Glu Lys Asn
 2015 2020 2025

Arg Tyr Glu Arg Thr Tyr Glu Asn Val Tyr Phe Leu His Asn Pro
 2030 2035 2040

Glu Thr Asn Gly Arg Gly Phe Ser Lys Leu Pro Glu Ile Ala Val
 2045 2050 2055

Ala Ala Phe His Lys Met Leu Glu Gly Ala Lys Ile Gly Asn Lys
 2060 2065 2070

Thr Val Ile Gly Leu Ser Asn Ser Gly Leu Ala Leu Gly Asn Ile

2075		2080		2085
Met Glu Asp Tyr Gly Lys Asp Lys Asn Gly Leu Phe Val Gly Ser				
2090		2095		2100
His Ser Arg Gly Thr Leu Val Val Asp Asn Val Leu Asn Thr Leu				
2105		2110		2115
Asn Thr Gln Ala Asn Arg Asp Lys Lys Ile Leu Ser Asn Thr Glu				
2120		2125		2130
Leu Lys Met Val Gly Pro Ala Ala Asn Val Val Arg Ala Asp Lys				
2135		2140		2145
Arg Leu Phe Gln Leu Gln Gln Gly Val Thr Thr Pro Arg Thr Ala				
2150		2155		2160
Asp Phe Ala Arg Gln Ser Ile Gln Ile Glu Asn His Glu Leu Asp				
2165		2170		2175
Leu Ile Gly Met Leu Ile Gly Arg Asn Pro Ala Thr Val Gly Thr				
2180		2185		2190
Asn Thr Arg Gln Lys Ser Gln Trp Gln Ala Ile Arg Asp Ile Ile				
2195		2200		2205
Gly Asp Tyr Thr Ser Pro His Asn Cys Tyr Gly Met Ala Asn Lys				
2210		2215		2220
Gln Cys Val Thr Asp Gly Tyr Arg Asp Pro Glu Asn Lys Gln Thr				
2225		2230		2235
Gln Ser Pro Thr Gly Val Phe Glu Arg Gly Val Ser Asn Glu Ile				
2240		2245		2250
Glu Ile Met Tyr Arg Pro Val Arg Ile Tyr Asp Leu Gln His Pro				
2255		2260		2265
Lys Gly Lys Thr Lys				
2270				

<210> 1144
 <211> 648

<212> PRT

<213> Escherichia coli

<400> 1144

Met Thr Pro Leu Leu Glu Leu Lys Asp Ile Arg Arg Ser Tyr Pro Ala
1 5 10 15

Gly Asp Glu Gln Val Glu Val Leu Lys Gly Ile Ser Leu Asp Ile Tyr
20 25 30

Ala Gly Glu Met Val Ala Ile Val Gly Ala Ser Gly Ser Gly Lys Ser
35 40 45

Thr Leu Met Asn Ile Leu Gly Cys Leu Asp Lys Ala Thr Ser Gly Thr
50 55 60

Tyr Arg Val Ala Gly Gln Asp Val Ala Thr Leu Asp Ala Asp Ala Leu
65 70 75 80

Ala Gln Leu Arg Arg Glu His Phe Gly Phe Ile Phe Gln Arg Tyr His
85 90 95

Leu Leu Ser His Leu Thr Ala Glu Gln Asn Val Glu Val Pro Ala Val
100 105 110

Tyr Ala Gly Leu Glu Arg Lys Gln Arg Leu Leu Arg Ala Gln Glu Leu
115 120 125

Leu Gln Arg Leu Gly Leu Glu Asp Arg Thr Glu Tyr Tyr Pro Ala Gln
130 135 140

Leu Ser Gly Gly Gln Gln Gln Arg Val Ser Ile Ala Arg Ala Leu Met
145 150 155 160

Asn Gly Gly Gln Val Ile Leu Ala Asp Glu Pro Thr Gly Ala Leu Asp
165 170 175

Ser His Ser Gly Glu Glu Val Met Ala Ile Leu His Gln Leu Arg Asp
180 185 190

Arg Gly His Thr Val Ile Ile Val Thr His Asp Pro Gln Val Ala Ala
195 200 205

Gln Ala Glu Arg Val Ile Glu Ile Arg Asp Gly Glu Ile Val Arg Asn
 210 215 220

Pro Pro Ala Ile Glu Lys Val Asn Val Thr Gly Gly Thr Glu Pro Val
 225 230 235 240

Val Asn Thr Val Ser Gly Trp Arg Gln Phe Val Ser Gly Phe Asn Glu
 245 250 255

Ala Leu Thr Met Ala Trp Arg Ala Leu Ala Ala Asn Lys Met Arg Thr
 260 265 270

Leu Leu Thr Met Leu Gly Ile Ile Ile Gly Ile Ala Ser Val Val Ser
 275 280 285

Ile Val Val Val Gly Asp Ala Ala Lys Gln Met Val Leu Ala Asp Ile
 290 295 300

Arg Ser Ile Gly Thr Asn Thr Ile Asp Val Tyr Pro Gly Lys Asp Phe
 305 310 315 320

Gly Asp Asp Asp Pro Gln Tyr Gln Gln Ala Leu Lys Tyr Asp Asp Leu
 325 330 335

Ile Ala Ile Gln Lys Gln Pro Trp Val Ala Ser Ala Thr Pro Ala Val
 340 345 350

Ser Gln Asn Leu Arg Leu Arg Tyr Asn Asn Val Asp Val Ala Ala Ser
 355 360 365

Ala Asn Gly Val Ser Gly Asp Tyr Phe Asn Val Tyr Gly Met Thr Phe
 370 375 380

Ser Glu Gly Asn Thr Phe Asn Gln Glu Gln Leu Asn Gly Arg Ala Gln
 385 390 395 400

Val Val Val Leu Asp Ser Asn Thr Arg Arg Gln Leu Phe Pro His Lys
 405 410 415

Ala Asp Val Val Gly Glu Val Ile Leu Val Gly Asn Met Pro Ala Arg
 420 425 430

Val Ile Gly Val Ala Glu Glu Lys Gln Ser Met Phe Gly Ser Ser Lys

435		440		445
Val Leu Arg Val Trp Leu Pro Tyr Ser Thr Met Ser Gly Arg Val Met				
450		455		460
Gly Gln Ser Trp Leu Asn Ser Ile Thr Val Arg Val Lys Glu Gly Phe				
465		470		475
				480
Asp Ser Ala Glu Ala Glu Gln Gln Leu Thr Arg Leu Leu Ser Leu Arg				
	485		490	495
His Gly Lys Lys Asp Phe Phe Thr Trp Asn Met Asp Gly Val Leu Lys				
	500		505	510
Thr Val Glu Lys Thr Thr Arg Thr Leu Gln Leu Phe Leu Thr Leu Val				
	515		520	525
Ala Val Ile Ser Leu Val Val Gly Gly Ile Gly Val Met Asn Ile Met				
	530		535	540
Leu Val Ser Val Thr Glu Arg Thr Arg Glu Ile Gly Ile Arg Met Ala				
545		550		555
				560
Val Gly Ala Arg Ala Ser Asp Val Leu Gln Gln Phe Leu Ile Glu Ala				
	565		570	575
Val Leu Val Cys Leu Val Gly Gly Ala Leu Gly Ile Thr Leu Ser Leu				
	580		585	590
Leu Ile Ala Phe Thr Leu Gln Leu Phe Leu Pro Gly Trp Glu Ile Gly				
	595		600	605
Phe Ser Pro Leu Ala Leu Leu Leu Ala Phe Leu Cys Ser Thr Val Thr				
	610		615	620
Gly Ile Leu Phe Gly Trp Leu Pro Ala Arg Asn Ala Ala Arg Leu Asp				
625		630		635
				640
Pro Val Asp Ala Leu Ala Arg Glu				
	645			

<210> 1145
 <211> 648

<212> PRT

<213> Escherichia coli

<400> 1145

Met Thr Pro Leu Leu Glu Leu Lys Asp Ile Arg Arg Ser Tyr Pro Ala
1 5 10 15

Gly Asp Glu Gln Val Glu Val Leu Lys Gly Ile Ser Leu Asp Ile Tyr
20 25 30

Ala Gly Glu Met Val Ala Ile Val Gly Ala Ser Gly Ser Gly Lys Ser
35 40 45

Thr Leu Met Asn Ile Leu Gly Cys Leu Asp Lys Ala Thr Ser Gly Thr
50 55 60

Tyr Arg Val Ala Gly Gln Asp Val Ala Thr Leu Asp Ala Asp Ala Leu
65 70 75 80

Ala Gln Leu Arg Arg Glu His Phe Gly Phe Ile Phe Gln Arg Tyr His
85 90 95

Leu Leu Ser His Leu Thr Ala Glu Gln Asn Val Glu Val Pro Ala Val
100 105 110

Tyr Ala Gly Leu Glu Arg Lys Gln Arg Leu Leu Arg Ala Gln Glu Leu
115 120 125

Leu Gln Arg Leu Gly Leu Glu Asp Arg Thr Glu Tyr Tyr Pro Ala Gln
130 135 140

Leu Ser Gly Gly Gln Gln Gln Arg Val Ser Ile Ala Arg Ala Leu Met
145 150 155 160

Asn Gly Gly Gln Val Ile Leu Ala Asp Glu Pro Thr Gly Ala Leu Asp
165 170 175

Ser His Ser Gly Glu Glu Val Met Ala Ile Leu His Gln Leu Arg Asp
180 185 190

Arg Gly His Thr Val Ile Ile Val Thr His Asp Pro Gln Val Ala Ala
195 200 205

Gln Ala Glu Arg Val Ile Glu Ile Arg Asp Gly Glu Ile Val Arg Asn
 210 215 220

Pro Pro Ala Ile Glu Lys Val Asn Val Thr Gly Gly Thr Glu Pro Val
 225 230 235 240

Val Asn Thr Val Ser Gly Trp Arg Gln Phe Val Ser Gly Phe Asn Glu
 245 250 255

Ala Leu Thr Met Ala Trp Arg Ala Leu Ala Ala Asn Lys Met Arg Thr
 260 265 270

Leu Leu Thr Met Leu Gly Ile Ile Ile Gly Ile Ala Ser Val Val Ser
 275 280 285

Ile Val Val Val Gly Asp Ala Ala Lys Gln Met Val Leu Ala Asp Ile
 290 295 300

Arg Ser Ile Gly Thr Asn Thr Ile Asp Val Tyr Pro Gly Lys Asp Phe
 305 310 315 320

Gly Asp Asp Asp Pro Gln Tyr Gln Gln Ala Leu Lys Tyr Asp Asp Leu
 325 330 335

Ile Ala Ile Gln Lys Gln Pro Trp Val Ala Ser Ala Thr Pro Ala Val
 340 345 350

Ser Gln Asn Leu Arg Leu Arg Tyr Asn Asn Val Asp Val Ala Ala Ser
 355 360 365

Ala Asn Gly Val Ser Gly Asp Tyr Phe Asn Val Tyr Gly Met Thr Phe
 370 375 380

Ser Glu Gly Asn Thr Phe Asn Gln Glu Gln Leu Asn Gly Arg Ala Gln
 385 390 395 400

Val Val Val Leu Asp Ser Asn Thr Arg Arg Gln Leu Phe Pro His Lys
 405 410 415

Ala Asp Val Val Gly Glu Val Ile Leu Val Gly Asn Met Pro Ala Arg
 420 425 430

Val Ile Gly Val Ala Glu Glu Lys Gln Ser Met Phe Gly Ser Ser Lys

435	440	445
Val Leu Arg Val Trp Leu Pro Tyr Ser Thr Met Ser Gly Arg Val Met		
450	455	460
Gly Gln Ser Trp Leu Asn Ser Ile Thr Val Arg Val Lys Glu Gly Phe		
465	470	475 480
Asp Ser Ala Glu Ala Glu Gln Gln Leu Thr Arg Leu Leu Ser Leu Arg		
485	490	495
His Gly Lys Lys Asp Phe Phe Thr Trp Asn Met Asp Gly Val Leu Lys		
500	505	510
Thr Val Glu Lys Thr Thr Arg Thr Leu Gln Leu Phe Leu Thr Leu Val		
515	520	525
Ala Val Ile Ser Leu Val Val Gly Gly Ile Gly Val Met Asn Ile Met		
530	535	540
Leu Val Ser Val Thr Glu Arg Thr Arg Glu Ile Gly Ile Arg Met Ala		
545	550	555 560
Val Gly Ala Arg Ala Ser Asp Val Leu Gln Gln Phe Leu Ile Glu Ala		
565	570	575
Val Leu Val Cys Leu Val Gly Gly Ala Leu Gly Ile Thr Leu Ser Leu		
580	585	590
Leu Ile Ala Phe Thr Leu Gln Leu Phe Leu Pro Gly Trp Glu Ile Gly		
595	600	605
Phe Ser Pro Leu Ala Leu Leu Leu Ala Phe Leu Cys Ser Thr Val Thr		
610	615	620
Gly Ile Leu Phe Gly Trp Leu Pro Ala Arg Asn Ala Ala Arg Leu Asp		
625	630	635 640
Pro Val Asp Ala Leu Ala Arg Glu		
645		

<210> 1146
 <211> 261

<212> PRT

<213> Neisseria meningitidis

<400> 1146

Lys Asn Ser Asp Ile Phe Asp Arg Thr Leu Pro Arg Lys Gly Leu Trp
1 5 10 15

Leu Arg Val Ile Asp Gly His Ser Asn Gln Trp Val Gln Gly Lys Thr
20 25 30

Ala Pro Val Glu Gly Tyr Arg Lys Gly Val Gln Leu Gly Gly Glu Val
35 40 45

Phe Thr Trp Gln Asn Glu Ser Asn Gln Leu Ser Ile Gly Leu Met Gly
50 55 60

Gly Gln Ala Glu Gln Arg Ser Thr Phe His Asn Pro Asp Thr Asp Asn
65 70 75 80

Leu Thr Thr Gly Asn Val Lys Gly Phe Gly Ala Gly Val Tyr Ala Thr
85 90 95

Trp His Gln Leu Gln Asp Lys Gln Thr Gly Ala Tyr Ala Asp Ser Trp
100 105 110

Met Gln Tyr Gln Arg Phe Arg His Arg Ile Asn Thr Glu Asp Gly Thr
115 120 125

Glu Arg Phe Thr Ser Lys Gly Ile Thr Ala Ser Ile Glu Ala Gly Tyr
130 135 140

Asn Ala Leu Leu Ala Glu His Phe Thr Lys Lys Gly Asn Ser Leu Arg
145 150 155 160

Val Tyr Leu Gln Pro Gln Ala Gln Leu Thr Tyr Leu Gly Val Asn Gly
165 170 175

Lys Phe Ser Asp Ser Glu Asn Ala His Val Asn Leu Leu Gly Ser Arg
180 185 190

Gln Leu Gln Thr Arg Val Gly Val Gln Ala Lys Ala Gln Phe Ser Leu
195 200 205

Tyr Lys Asn Ile Ala Ile Glu Pro Phe Ala Ala Val Asn Ala Leu Tyr
 210 215 220

His Asn Lys Pro Phe Gly Val Glu Met Asp Gly Glu Arg Arg Val Ile
 225 230 235 240

Asn Asn Lys Thr Ala Ile Glu Ser Gln Leu Gly Val Ala Val Lys Ile
 245 250 255

Lys Ser His Leu Thr
 260

<210> 1147
 <211> 253
 <212> PRT
 <213> Pseudomonas fluorescens

<400> 1147

Met Asp Lys Leu Lys Gly Ala Leu Leu Val Gly Ala Leu Arg Leu Phe
 1 5 10 15

Ala Leu Leu Pro Trp Arg Ala Val Gln Ala Val Gly Ser Ala Ile Gly
 20 25 30

Trp Phe Met Trp Lys Leu Pro Asn Arg Ser Arg Asp Val Val Arg Ile
 35 40 45

Asn Leu Ala Lys Cys Phe Pro Glu Met Asp Pro Ala Glu Arg Glu Arg
 50 55 60

Leu Val Gly Gln Ser Leu Lys Asp Ile Gly Lys Ser Leu Thr Glu Ser
 65 70 75 80

Ala Cys Ala Trp Ile Trp Pro Ala Gln Arg Ser Ile Asp Leu Val Arg
 85 90 95

Glu Val Glu Gly Leu Glu Val Leu Lys Glu Ala Leu Ala Ser Gly Lys
 100 105 110

Gly Val Val Gly Ile Thr Ser His Leu Gly Asn Trp Glu Val Leu Asn
 115 120 125

His Phe Tyr Cys Ser Gln Cys Lys Pro Ile Ile Phe Tyr Arg Pro Pro
 130 135 140

Lys Leu Lys Ala Val Asp Glu Leu Leu Arg Lys Gln Arg Val Gln Leu
 145 150 155 160

Gly Asn Lys Val Ala Ala Ser Thr Lys Glu Gly Ile Leu Ser Val Ile
 165 170 175

Lys Glu Val Arg Lys Gly Gly Gln Val Gly Ile Pro Ala Asp Pro Glu
 180 185 190

Pro Ala Glu Ser Ala Gly Ile Phe Val Pro Phe Phe Ala Thr Gln Ala
 195 200 205

Leu Thr Ser Lys Phe Val Pro Asn Met Leu Ala Gly Gly Lys Ala Val
 210 215 220

Gly Val Phe Leu His Ala Leu Arg Leu Pro Asp Gly Ser Gly Tyr Lys
 225 230 235 240

Val Ile Leu Glu Ala Ala Pro Glu Ala Met Tyr Ser Thr
 245 250

<210> 1148
 <211> 454
 <212> PRT
 <213> Escherichia coli

<400> 1148

Met Ser Thr Ile Thr Leu Leu Cys Ile Ala Leu Ala Gly Val Ile Met
 1 5 10 15

Leu Leu Leu Leu Val Ile Lys Ala Lys Val Gln Pro Phe Val Ala Leu
 20 25 30

Leu Leu Val Ser Leu Leu Val Ala Leu Ala Ala Gly Ile Pro Ala Gly
 35 40 45

Glu Val Gly Lys Val Met Ile Ala Gly Met Gly Gly Val Leu Gly Ser
 50 55 60

Val Thr Ile Ile Ile Gly Leu Gly Ala Met Leu Gly Arg Met Ile Glu
 65 70 75 80

His Ser Gly Gly Ala Glu Ser Leu Ala Asn Tyr Phe Ser Arg Lys Leu
85 90 95

Gly Asp Lys Arg Thr Ile Ala Ala Leu Thr Leu Ala Ala Phe Phe Leu
100 105 110

Gly Ile Pro Val Phe Phe Asp Val Gly Phe Ile Ile Leu Ala Pro Ile
115 120 125

Ile Tyr Gly Phe Ala Lys Val Ala Lys Ile Ser Pro Leu Lys Phe Gly
130 135 140

Leu Pro Val Ala Gly Ile Met Leu Thr Val His Val Ala Val Pro Pro
145 150 155 160

His Pro Gly Pro Val Ala Ala Ala Gly Leu Leu His Ala Asp Ile Gly
165 170 175

Trp Leu Thr Ile Ile Gly Ile Ala Ile Ser Ile Pro Val Gly Val Val
180 185 190

Gly Tyr Phe Ala Ala Lys Ile Ile Asn Lys Arg Gln Tyr Ala Met Ser
195 200 205

Val Glu Val Leu Glu Gln Met Gln Leu Ala Pro Ala Ser Glu Glu Gly
210 215 220

Ala Thr Lys Leu Ser Asp Lys Ile Asn Pro Pro Gly Val Ala Leu Val
225 230 235 240

Thr Ser Leu Ile Val Ile Pro Ile Ala Ile Ile Met Ala Gly Thr Val
245 250 255

Ser Ala Thr Leu Met Pro Pro Ser His Pro Leu Leu Gly Thr Leu Gln
260 265 270

Leu Ile Gly Ser Pro Met Val Ala Leu Met Ile Ala Leu Val Leu Ala
275 280 285

Phe Trp Leu Leu Ala Leu Arg Arg Gly Trp Ser Leu Gln His Thr Ser
290 295 300

Asp Ile Met Gly Ser Ala Leu Pro Thr Ala Ala Val Val Ile Leu Val

305 310 315 320

Thr Gly Ala Gly Gly Val Phe Gly Lys Val Leu Val Glu Ser Gly Val
325 330 335

Gly Lys Ala Leu Ala Asn Met Leu Gln Met Ile Asp Leu Pro Leu Leu
340 345 350

Pro Ala Ala Phe Ile Ile Ser Leu Ala Leu Arg Ala Ser Gln Gly Ser
355 360 365

Ala Thr Val Ala Ile Leu Thr Thr Gly Gly Leu Leu Ser Glu Ala Val
370 375 380

Met Gly Leu Asn Pro Ile Gln Cys Val Leu Val Thr Leu Ala Ala Cys
385 390 395 400

Phe Gly Gly Leu Gly Ala Ser His Ile Asn Asp Ser Gly Phe Trp Ile
405 410 415

Val Thr Lys Tyr Leu Gly Leu Ser Val Ala Asp Gly Leu Lys Thr Trp
420 425 430

Thr Val Leu Thr Thr Ile Leu Gly Phe Thr Gly Phe Leu Ile Thr Trp
435 440 445

Cys Val Trp Ala Val Ile
450

<210> 1149
<211> 558
<212> PRT
<213> *Erwinia chrysanthemi*

<400> 1149

Met Pro Val Ser Ser Arg Lys Thr Gly Leu Ile Ala Cys Leu Ser Leu
1 5 10 15

Ile Gly Tyr Thr Ala Ser Ala Phe Ser Ala Ser Leu Asn Pro Ala Glu
20 25 30

Arg Ser Glu Ile Gln Gln Arg Gln Ser Glu Val Ile Glu Gln Ser Arg
35 40 45

Gln Gln Arg Glu Ala Leu Gln Gln Leu Asn Asp Ile Ala Gln Ala Pro
50 55 60

Leu Lys Ala Asp Asn Ala Pro Gln Gly Pro Cys Phe Thr Leu Arg Asp
65 70 75 80

Ile Arg Phe Asn His Ser Thr Leu Leu Arg Pro Ser Asp Gln Ala Thr
85 90 95

Leu Val Ala Gly Tyr Leu Asn Arg Cys Asn Asn Leu Glu Gln Ile Asn
100 105 110

Gln Leu Val His Asp Val Ser Asn Trp Tyr Ile Gln Arg Gly Tyr Ile
115 120 125

Thr Ser Arg Ala Phe Leu Ser Glu Gln Asp Leu Ser Gly Gly Val Leu
130 135 140

Gln Leu Glu Ile Leu Glu Gly Arg Leu Glu Lys Ile Thr Ile Asn Asn
145 150 155 160

Gln Thr Glu Arg Met Thr Arg Thr Ala Phe Pro Ala His Glu Gly Glu
165 170 175

Ile Leu Asn Leu Arg Asp Ile Glu Gln Gly Met Glu Gln Met Asn Arg
180 185 190

Met Pro Ser Gln Gln Val Thr Ile Glu Ile Gln Pro Gly Ser Gln Pro
195 200 205

Gly Tyr Ser Val Val Asn Leu Thr Arg Glu Ala His Leu Pro Phe Ser
210 215 220

Gly Gly Leu Thr Phe Asp Asn Ser Gly Gln Lys Ser Thr Gly Glu Glu
225 230 235 240

Gln Leu Asn Gly Ser Leu Ala Leu Asp Asn Val Phe Gly Leu Ala Asp
245 250 255

Gln Trp Phe Ile Ser Ala Gly His Ser Ser Arg Phe Ala Thr Ser His
260 265 270

Asp Ala Glu Ser Leu Gln Ala Gly Phe Ser Met Pro Tyr Gly Tyr Trp
 275 280 285

Asn Leu Gly Tyr Asn Tyr Ser Gln Ser Arg Tyr Arg Asn Thr Phe Ile
 290 295 300

Asn Arg Asp Phe Pro Trp His Ser Thr Gly Asp Ser Asp Thr His Arg
 305 310 315 320

Phe Ser Leu Ser Arg Val Val Phe Arg Asp Gly Thr Met Lys Thr Ala
 325 330 335

Ile Ala Gly Thr Phe Ser Gln Arg Thr Gly Asn Asn Tyr Leu Asn Gly
 340 345 350

Ser Leu Leu Pro Ser Ser Ser Arg Lys Leu Ser Ser Val Ser Leu Gly
 355 360 365

Val Asn His Ser Gln Lys Leu Trp Gly Gly Leu Ala Thr Phe Asn Pro
 370 375 380

Thr Tyr Asn Arg Gly Val Arg Trp Leu Gly Ser Glu Thr Asp Thr Asp
 385 390 395 400

Lys Ser Ala Asp Glu Pro Arg Ala Glu Phe Asn Lys Trp Thr Leu Ser
 405 410 415

Ala Ser Tyr Tyr His Pro Val Thr Asp Ser Ile Thr Tyr Leu Gly Ser
 420 425 430

Leu Tyr Gly Gln Tyr Ser Ala Arg Ala Leu Tyr Gly Ser Glu Gln Leu
 435 440 445

Thr Leu Gly Gly Glu Ser Ser Ile Arg Gly Phe Arg Glu Gln Tyr Thr
 450 455 460

Ser Gly Asn Arg Gly Ala Tyr Trp Arg Asn Glu Leu Asn Trp Gln Ala
 465 470 475 480

Trp Gln Leu Pro Val Leu Gly Asn Val Thr Phe Met Ala Ala Val Asp
 485 490 495

Gly Gly His Leu Tyr Asn His Lys Gln Asp Asn Ser Thr Ala Ala Ser

500	505	510
Leu Trp Gly Gly Ala Val Gly Met Thr Val Ala Ser Arg Trp Leu Ser		
515	520	525
Gln Gln Val Thr Val Gly Trp Pro Ile Ser Tyr Pro Ala Trp Leu Gln		
530	535	540
Pro Asp Thr Met Val Val Gly Tyr Arg Val Gly Leu Ser Phe		
545	550	555
<210> 1150		
<211> 352		
<212> PRT		
<213> Escherichia coli		
<400> 1150		
Met Arg Ala Asp Lys Ser Leu Ser Pro Phe Glu Ile Arg Val Tyr Arg		
1	5	10 15
His Tyr Arg Ile Val His Gly Thr Arg Val Ala Leu Ala Phe Leu Leu		
20	25	30
Thr Phe Leu Ile Ile Arg Leu Phe Thr Ile Pro Glu Ser Thr Trp Pro		
35	40	45
Leu Val Thr Met Val Val Ile Met Gly Pro Ile Ser Phe Trp Gly Asn		
50	55	60
Val Val Pro Arg Ala Phe Glu Arg Ile Gly Gly Thr Val Leu Gly Ser		
65	70	75 80
Ile Leu Gly Leu Ile Ala Leu Gln Leu Glu Leu Ile Ser Leu Pro Leu		
85	90	95
Met Leu Val Trp Cys Ala Ala Ala Met Phe Leu Cys Gly Trp Leu Ala		
100	105	110
Leu Gly Lys Lys Pro Tyr Gln Gly Leu Leu Ile Gly Val Thr Leu Ala		
115	120	125
Ile Val Val Gly Ser Pro Thr Gly Glu Ile Asp Thr Ala Leu Trp Arg		
130	135	140

Ser Gly Asp Val Ile Leu Gly Ser Leu Leu Ala Met Leu Phe Thr Gly
 145 150 155 160

Ile Trp Pro Gln Arg Ala Phe Ile His Trp Arg Ile Gln Leu Ala Lys
 165 170 175

Ser Leu Thr Glu Tyr Asn Arg Val Tyr Gln Ser Ala Phe Ser Pro Asn
 180 185 190

Leu Leu Glu Arg Pro Arg Leu Glu Ser His Leu Gln Lys Leu Leu Thr
 195 200 205

Asp Ala Val Lys Met Arg Gly Leu Ile Ala Pro Ala Ser Lys Glu Thr
 210 215 220

Arg Ile Pro Lys Ser Ile Tyr Glu Gly Ile Gln Thr Ile Asn Arg Asn
 225 230 235 240

Leu Val Cys Met Leu Glu Leu Gln Ile Asn Ala Tyr Trp Ala Thr Arg
 245 250 255

Pro Ser His Phe Val Leu Leu Asn Ala Gln Lys Leu Arg Asp Thr Gln
 260 265 270

His Met Met Gln Gln Ile Leu Leu Ser Leu Val His Ala Leu Tyr Glu
 275 280 285

Gly Asn Pro Gln Pro Val Phe Ala Asn Thr Glu Lys Leu Asn Asp Ala
 290 295 300

Val Glu Glu Leu Arg Gln Leu Leu Asn Asn His His Asp Leu Lys Val
 305 310 315 320

Val Glu Thr Pro Ile Tyr Gly Tyr Val Trp Leu Asn Met Glu Thr Ala
 325 330 335

His Gln Leu Glu Leu Leu Ser Asn Leu Ile Cys Arg Ala Leu Arg Lys
 340 345 350

<210> 1151

<211> 286

<212> PRT

<213> Escherichia coli

<400> 1151

Met Lys Gln His Gln Ser Ala Asp Asn Ser Gln Gly Gln Leu Tyr Ile
1 5 10 15

Val Pro Thr Pro Ile Gly Asn Leu Ala Asp Ile Thr Gln Arg Ala Leu
20 25 30

Glu Val Leu Gln Ala Val Asp Leu Ile Ala Ala Glu Asp Thr Arg His
35 40 45

Thr Gly Leu Leu Leu Gln His Phe Gly Ile Asn Ala Arg Leu Phe Ala
50 55 60

Leu His Asp His Asn Glu Gln Gln Lys Ala Glu Thr Leu Leu Ala Lys
65 70 75 80

Leu Gln Glu Gly Gln Asn Ile Ala Leu Val Ser Asp Ala Gly Thr Pro
85 90 95

Leu Ile Asn Asp Pro Gly Tyr His Leu Val Arg Thr Cys Arg Glu Ala
100 105 110

Gly Ile Arg Val Val Pro Leu Pro Gly Pro Cys Ala Ala Ile Thr Ala
115 120 125

Leu Ser Ala Ala Gly Leu Pro Ser Asp Arg Phe Cys Tyr Glu Gly Phe
130 135 140

Leu Pro Ala Lys Ser Lys Gly Arg Arg Asp Ala Leu Lys Ala Ile Glu
145 150 155 160

Ala Glu Pro Arg Thr Leu Ile Phe Tyr Glu Ser Thr His Arg Leu Leu
165 170 175

Asp Ser Leu Glu Asp Ile Val Ala Val Leu Gly Glu Ser Arg Tyr Val
180 185 190

Val Leu Ala Arg Glu Leu Thr Lys Thr Trp Glu Thr Ile His Gly Ala
195 200 205

Pro Val Gly Glu Leu Leu Ala Trp Val Lys Glu Asp Glu Asn Arg Arg
210 215 220

Lys Gly Glu Met Val Leu Ile Val Glu Gly His Lys Ala Gln Glu Glu
 225 230 235 240

Asp Leu Pro Ala Asp Ala Leu Arg Thr Leu Ala Leu Leu Gln Ala Glu
 245 250 255

Leu Pro Leu Lys Lys Ala Ala Ala Leu Ala Ala Glu Ile His Gly Val
 260 265 270

Lys Lys Asn Ala Leu Tyr Lys Tyr Ala Leu Glu Gln Gln Gly
 275 280 285

<210> 1152
 <211> 286
 <212> PRT
 <213> Escherichia coli

<400> 1152

Met Lys Gln His Gln Ser Ala Asp Asn Ser Gln Gly Gln Leu Tyr Ile
 1 5 10 15

Val Pro Thr Pro Ile Gly Asn Leu Ala Asp Ile Thr Gln Arg Ala Leu
 20 25 30

Glu Val Leu Gln Ala Val Asp Leu Ile Ala Ala Glu Asp Thr Arg His
 35 40 45

Thr Gly Leu Leu Leu Gln His Phe Gly Ile Asn Ala Arg Leu Phe Ala
 50 55 60

Leu His Asp His Asn Glu Gln Gln Lys Ala Glu Thr Leu Leu Ala Lys
 65 70 75 80

Leu Gln Glu Gly Gln Asn Ile Ala Leu Val Ser Asp Ala Gly Thr Pro
 85 90 95

Leu Ile Asn Asp Pro Gly Tyr His Leu Val Arg Thr Cys Arg Glu Ala
 100 105 110

Gly Ile Arg Val Val Pro Leu Pro Gly Pro Cys Ala Ala Ile Thr Ala
 115 120 125

Leu Ser Ala Ala Gly Leu Pro Ser Asp Arg Phe Cys Tyr Glu Gly Phe
 130 135 140

Leu Pro Ala Lys Ser Lys Gly Arg Arg Asp Ala Leu Lys Ala Ile Glu
 145 150 155 160

Ala Glu Pro Arg Thr Leu Ile Phe Tyr Glu Ser Thr His Arg Leu Leu
 165 170 175

Asp Ser Leu Glu Asp Ile Val Ala Val Leu Gly Glu Ser Arg Tyr Val
 180 185 190

Val Leu Ala Arg Glu Leu Thr Lys Thr Trp Glu Thr Ile His Gly Ala
 195 200 205

Pro Val Gly Glu Leu Leu Ala Trp Val Lys Glu Asp Glu Asn Arg Arg
 210 215 220

Lys Gly Glu Met Val Leu Ile Val Glu Gly His Lys Ala Gln Glu Glu
 225 230 235 240

Asp Leu Pro Ala Asp Ala Leu Arg Thr Leu Ala Leu Leu Gln Ala Glu
 245 250 255

Leu Pro Leu Lys Lys Ala Ala Ala Leu Ala Ala Glu Ile His Gly Val
 260 265 270

Lys Lys Asn Ala Leu Tyr Lys Tyr Ala Leu Glu Gln Gln Gly
 275 280 285

<210> 1153
 <211> 1394
 <212> PRT
 <213> Haemophilus influenzae

<400> 1153

Met Lys Lys Thr Val Phe Arg Leu Asn Phe Leu Thr Ala Cys Ile Ser
 1 5 10 15

Leu Gly Ile Val Ser Gln Ala Trp Ala Gly His Thr Tyr Phe Gly Ile
 20 25 30

Asp Tyr Gln Tyr Tyr Arg Asp Phe Ala Glu Asn Lys Gly Lys Phe Thr
 35 40 45

Val Gly Ala Gln Asn Ile Lys Val Tyr Asn Lys Gln Gly Gln Leu Val
 50 55 60

Gly Thr Ser Met Thr Lys Ala Pro Met Ile Asp Phe Ser Val Val Ser
 65 70 75 80

Arg Asn Gly Val Ala Ala Leu Val Glu Asn Gln Tyr Ile Val Ser Val
 85 90 95

Ala His Asn Val Gly Tyr Thr Asp Val Asp Phe Gly Ala Glu Gly Asn
 100 105 110

Asn Pro Asp Gln His Arg Phe Thr Tyr Lys Ile Val Lys Arg Asn Asn
 115 120 125

Tyr Lys Lys Asp Asn Leu His Pro Tyr Glu Asp Asp Tyr His Asn Pro
 130 135 140

Arg Leu His Lys Phe Val Thr Glu Ala Ala Pro Ile Asp Met Thr Ser
 145 150 155 160

Asn Met Asn Gly Ser Thr Tyr Ser Asp Arg Thr Lys Tyr Pro Glu Arg
 165 170 175

Val Arg Ile Gly Ser Gly Arg Gln Phe Trp Arg Asn Asp Gln Asp Lys
 180 185 190

Gly Asp Gln Val Ala Gly Ala Tyr His Tyr Leu Thr Ala Gly Asn Thr
 195 200 205

His Asn Gln Arg Gly Ala Gly Asn Gly Tyr Ser Tyr Leu Gly Gly Asp
 210 215 220

Val Arg Lys Ala Gly Glu Tyr Gly Pro Leu Pro Ile Ala Gly Ser Lys
 225 230 235 240

Gly Asp Ser Gly Ser Pro Met Phe Ile Tyr Asp Ala Glu Lys Gln Lys
 245 250 255

Trp Leu Ile Asn Gly Ile Leu Arg Glu Gly Asn Pro Phe Glu Gly Lys
 260 265 270

Glu Asn Gly Phe Gln Leu Val Arg Lys Ser Tyr Phe Asp Glu Ile Phe
 275 280 285

Glu Arg Asp Leu His Thr Ser Leu Tyr Thr Arg Ala Gly Asn Gly Val
 290 295 300

Tyr Thr Ile Ser Gly Asn Asp Asn Gly Gln Gly Ser Ile Thr Gln Lys
 305 310 315 320

Ser Gly Ile Pro Ser Glu Ile Lys Ile Thr Leu Ala Asn Met Ser Leu
 325 330 335

Pro Leu Lys Glu Lys Asp Lys Val His Asn Pro Arg Tyr Asp Gly Pro
 340 345 350

Asn Ile Tyr Ser Pro Arg Leu Asn Asn Gly Glu Thr Leu Tyr Phe Met
 355 360 365

Asp Gln Lys Gln Gly Ser Leu Ile Phe Ala Ser Asp Ile Asn Gln Gly
 370 375 380

Ala Gly Gly Leu Tyr Phe Glu Gly Asn Phe Thr Val Ser Pro Asn Ser
 385 390 395 400

Asn Gln Thr Trp Gln Gly Ala Gly Ile His Val Ser Glu Asn Ser Thr
 405 410 415

Val Thr Trp Lys Val Asn Gly Val Glu His Asp Arg Leu Ser Lys Ile
 420 425 430

Gly Lys Gly Thr Leu His Val Gln Ala Lys Gly Glu Asn Lys Gly Ser
 435 440 445

Ile Ser Val Gly Asp Gly Lys Val Ile Leu Glu Gln Gln Ala Asp Asp
 450 455 460

Gln Gly Asn Lys Gln Ala Phe Ser Glu Ile Gly Leu Val Ser Gly Arg
 465 470 475 480

Gly Thr Val Gln Leu Asn Asp Asp Lys Gln Phe Asp Thr Asp Lys Phe
 485 490 495

Tyr Phe Gly Phe Arg Gly Gly Arg Leu Asp Leu Asn Gly His Ser Leu
500 505 510

Thr Phe Lys Arg Ile Gln Asn Thr Asp Glu Gly Ala Met Ile Val Asn
515 520 525

His Asn Thr Thr Gln Ala Ala Asn Val Thr Ile Thr Gly Asn Glu Ser
530 535 540

Ile Val Leu Pro Asn Gly Asn Asn Ile Asn Lys Leu Asp Tyr Arg Lys
545 550 555 560

Glu Ile Ala Tyr Asn Gly Trp Phe Gly Glu Thr Asp Lys Asn Lys His
565 570 575

Asn Gly Arg Leu Asn Leu Ile Tyr Lys Pro Thr Thr Glu Asp Arg Thr
580 585 590

Leu Leu Leu Ser Gly Gly Thr Asn Leu Lys Gly Asp Ile Thr Gln Thr
595 600 605

Lys Gly Lys Leu Phe Phe Ser Gly Arg Pro Thr Pro His Ala Tyr Asn
610 615 620

His Leu Asn Lys Arg Trp Ser Glu Met Glu Gly Ile Pro Gln Gly Glu
625 630 635 640

Ile Val Trp Asp His Asp Trp Ile Asn Arg Thr Phe Lys Ala Glu Asn
645 650 655

Phe Gln Ile Lys Gly Gly Ser Ala Val Val Ser Arg Asn Val Ser Ser
660 665 670

Ile Glu Gly Asn Trp Thr Val Ser Asn Asn Ala Asn Ala Thr Phe Gly
675 680 685

Val Val Pro Asn Gln Gln Asn Thr Ile Cys Thr Arg Ser Asp Trp Thr
690 695 700

Gly Leu Thr Thr Cys Gln Lys Val Asp Leu Thr Asp Thr Lys Val Ile
705 710 715 720

Asn Ser Ile Pro Lys Thr Gln Ile Asn Gly Ser Ile Asn Leu Thr Asp

725	730	735
Asn Ala Thr Ala Asn Val Lys Gly Leu Ala Lys Leu Asn Gly Asn Val		
740	745	750
Thr Leu Thr Asn His Ser Gln Phe Thr Leu Ser Asn Asn Ala Thr Gln		
755	760	765
Ile Gly Asn Ile Arg Leu Ser Asp Asn Ser Thr Ala Thr Val Asp Asn		
770	775	780
Ala Asn Leu Asn Gly Asn Val His Leu Thr Asp Ser Ala Gln Phe Ser		
785	790	795
Leu Lys Asn Ser His Phe Ser His Gln Ile Gln Gly Asp Lys Gly Thr		
805	810	815
Thr Val Thr Leu Glu Asn Ala Thr Trp Thr Met Pro Ser Asp Thr Thr		
820	825	830
Leu Gln Asn Leu Thr Leu Asn Asn Ser Thr Ile Thr Leu Asn Ser Ala		
835	840	845
Tyr Ser Ala Ser Ser Asn Asn Thr Pro Arg Arg Arg Ser Leu Glu Thr		
850	855	860
Glu Thr Thr Pro Thr Ser Ala Glu His Arg Phe Asn Thr Leu Thr Val		
865	870	875
Asn Gly Lys Leu Ser Gly Gln Gly Thr Phe Gln Phe Thr Ser Ser Leu		
885	890	895
Phe Gly Tyr Lys Ser Asp Lys Leu Lys Leu Ser Asn Asp Ala Glu Gly		
900	905	910
Asp Tyr Ile Leu Ser Val Arg Asn Thr Gly Lys Glu Pro Glu Thr Leu		
915	920	925
Glu Gln Leu Thr Leu Val Glu Ser Lys Asp Asn Gln Pro Leu Ser Asp		
930	935	940
Lys Leu Lys Phe Thr Leu Glu Asn Asp His Val Asp Ala Gly Ala Leu		
945	950	955
		960

Arg Tyr Lys Leu Val Lys Asn Asp Gly Glu Phe Arg Leu His Asn Pro
965 970 975

Ile Lys Glu Gln Glu Leu His Asn Asp Leu Val Arg Ala Glu Gln Ala
980 985 990

Glu Arg Thr Leu Glu Ala Lys Gln Val Glu Pro Thr Ala Lys Thr Gln
995 1000 1005

Thr Gly Glu Pro Lys Val Arg Ser Arg Arg Ala Ala Arg Ala Ala
1010 1015 1020

Phe Pro Asp Thr Leu Pro Asp Gln Ser Leu Leu Asn Ala Leu Glu
1025 1030 1035

Ala Lys Gln Ala Glu Leu Thr Ala Glu Thr Gln Lys Ser Lys Ala
1040 1045 1050

Lys Thr Lys Lys Val Arg Ser Lys Arg Ala Val Phe Ser Asp Pro
1055 1060 1065

Leu Leu Asp Gln Ser Leu Phe Ala Leu Glu Ala Ala Leu Glu Val
1070 1075 1080

Ile Asp Ala Pro Gln Gln Ser Glu Lys Asp Arg Leu Ala Gln Glu
1085 1090 1095

Glu Ala Glu Lys Gln Arg Lys Gln Lys Asp Leu Ile Ser Arg Tyr
1100 1105 1110

Ser Asn Ser Ala Leu Ser Glu Leu Ser Ala Thr Val Asn Ser Met
1115 1120 1125

Leu Ser Val Gln Asp Glu Leu Asp Arg Leu Phe Val Asp Gln Ala
1130 1135 1140

Gln Ser Ala Val Trp Thr Asn Ile Ala Gln Asp Lys Arg Arg Tyr
1145 1150 1155

Asp Ser Asp Ala Phe Arg Ala Tyr Gln Gln Gln Lys Thr Asn Leu
1160 1165 1170

Arg Gln Ile Gly Val Gln Lys Ala Leu Ala Asn Gly Arg Ile Gly
1175 1180 1185

Gln Asn Val Gly Val Lys Leu Gly Tyr Arg Trp
 1385 1390

<210> 1154
 <211> 809
 <212> PRT
 <213> Pseudomonas putida

<400> 1154

Met Asn His Thr Ala Arg Lys Arg Gln Gly Trp Gln Arg Ser Val Ser
 1 5 10 15

Gln Lys Leu Ala Gly Ala Val Val Gln Gly Ile Ala Cys Met Gly Ala
 20 25 30

Ser Ala Pro Leu Leu Leu Met Pro Ala Trp Ala Thr Ala Ala Ala Gln
 35 40 45

Ala Gln Ala Asp Phe Asp Ile Pro Ala Gly Pro Leu Ala Pro Ala Leu
 50 55 60

Ala His Phe Gly Gln Ser Ala His Ile Leu Leu Ser Tyr Pro Thr Ala
 65 70 75 80

Leu Thr Glu Gly Arg Ser Thr Ser Gly Leu Ala Gly Arg Phe Asp Ile
 85 90 95

Asp Gln Gly Leu Ala Ile Leu Leu Ala Gly Thr Gly Leu Glu Ala Ser
 100 105 110

Arg Gly Ala Asn Ala Ser Tyr Ser Leu Gln Ala Ser Ala Ser Thr Gly
 115 120 125

Ala Leu Glu Leu Ser Ala Val Ser Ile Ser Gly Lys Ala Pro Gly Ser
 130 135 140

Thr Thr Glu Gly Thr Gly Leu Tyr Thr Thr Tyr Ser Ser Ser Ser Ser
 145 150 155 160

Thr Arg Leu Asn Leu Thr Pro Arg Glu Thr Pro Gln Ser Leu Thr Val
 165 170 175

Met Thr Arg Gln Arg Leu Asp Asp Gln Arg Leu Thr Asn Leu Thr Asp
 180 185 190

Ala Leu Glu Ala Thr Pro Gly Ile Thr Val Val Arg Asp Gly Leu Gly
 195 200 205

Ser Glu Ser Asp Ser Tyr Trp Ser Arg Gly Phe Ala Ile Gln Asn Tyr
 210 215 220

Glu Val Asp Gly Val Pro Thr Ser Thr Arg Leu Asp Asn Tyr Ser Gln
 225 230 235 240

Ser Met Ala Met Phe Asp Arg Val Glu Ile Val Arg Gly Ala Thr Gly
 245 250 255

Leu Ile Ser Gly Met Gly Asn Pro Ser Ala Thr Ile Asn Leu Ile Arg
 260 265 270

Lys Arg Pro Thr Ala Glu Ala Gln Ala Ser Ile Thr Gly Glu Ala Gly
 275 280 285

Asn Trp Asp Arg Tyr Gly Thr Gly Phe Asp Val Ser Gly Pro Leu Thr
 290 295 300

Glu Thr Gly Asn Ile Arg Gly Arg Phe Val Ala Asp Tyr Lys Thr Glu
 305 310 315 320

Lys Ala Trp Ile Asp Arg Tyr Asn Gln Gln Ser Gln Leu Met Tyr Gly
 325 330 335

Ile Thr Glu Phe Asp Leu Ser Glu Asp Thr Leu Leu Thr Val Gly Phe
 340 345 350

Ser Tyr Leu Arg Ser Asp Ile Asp Ser Pro Leu Arg Ser Gly Leu Pro
 355 360 365

Thr Arg Phe Ser Thr Gly Glu Arg Thr Asn Leu Lys Arg Ser Leu Asn
 370 375 380

Ala Ala Pro Asp Trp Ser Tyr Asn Asp His Glu Gln Thr Ser Phe Phe
 385 390 395 400

Thr Ser Ile Glu Gln Gln Leu Gly Asn Gly Trp Ser Gly Lys Ile Glu
 405 410 415

Leu Thr His Ala Glu Asn Lys Phe Asp Glu Leu Phe Asn Phe Ala Met
420 425 430

Gly Glu Leu Asn Pro Asp Gly Ser Gly Leu Ser Gln Leu Pro Val Arg
435 440 445

Phe Ser Gly Thr Pro Arg Gln Asp Asn Leu Asp Leu Tyr Ala Thr Gly
450 455 460

Pro Phe Ser Leu Phe Gly Arg Glu His Glu Leu Ile Thr Gly Met Thr
465 470 475 480

Leu Ser Gln Tyr Arg Glu Asn Thr Pro Ser Trp Gly Gly Trp Arg Tyr
485 490 495

Asp Tyr Ala Gly Ser Pro Ala Gly Ala Ile Asp Asn Leu Phe Asn Trp
500 505 510

Asp Gly Lys Ser Ala Lys Pro Ala Phe Val Glu Ser Gly Lys Ser Ser
515 520 525

Ile Asp Glu Asp Gln Tyr Ala Ala Tyr Leu Thr Ser Arg Phe Ser Val
530 535 540

Thr Asp Asp Leu Ser Leu Ile Leu Gly Ser Arg Leu Ile Asn Trp Lys
545 550 555 560

Arg Asp Thr Ser Asp Arg Pro Tyr Gly Gly Glu Glu Thr Glu Val Asn
565 570 575

Arg Glu Glu Asn Gly Val Phe Ile Pro Tyr Ala Gly Val Gly Tyr Asp
580 585 590

Leu Asp Asp Thr Trp Ser Leu Tyr Ala Ser Tyr Thr Lys Ile Phe Asn
595 600 605

Pro Gln Gly Ala Trp Val Thr Asp Glu Ser Asn Lys Pro Leu Asp Pro
610 615 620

Met Glu Gly Val Gly Tyr Glu Leu Gly Ile Lys Gly Thr His Leu Asn
625 630 635 640

Gly Lys Leu Asn Ser Ser Leu Ala Val Phe Lys Leu Glu Gln Asp Asn
645 650 655

Leu Ala Ile Trp Gln His Asp Asn Val Tyr Ser Ala Glu Gln Asp Thr
660 665 670

Thr Ser Lys Gly Ile Glu Leu Glu Leu Asn Gly Glu Leu Ala Glu Gly
675 680 685

Trp Gln Ala Ser Ala Gly Tyr Ser Tyr Ser Val Thr Thr Asp Ala Asp
690 695 700

Asp Gln Arg Ile Asn Thr Asn Leu Pro Arg Asn Ser Phe Lys Thr Phe
705 710 715 720

Thr Ser Tyr Arg Leu His Gly Pro Leu Asp Lys Ile Thr Ile Gly Gly
725 730 735

Gly Val Asn Trp Gln Ser Lys Val Gly Ala Asp Leu His Thr Phe Ser
740 745 750

Gln Gly Ser Tyr Ala Val Thr Asn Leu Met Ala Arg Tyr Asp Ile Asn
755 760 765

Gln His Leu Ser Ala Ser Val Asn Leu Asn Asn Val Phe Asp Arg Glu
770 775 780

Tyr Tyr Ser Gln Ser Gly Leu Tyr Gly Val Tyr Gly Thr Pro Arg Asn
785 790 795 800

Val Met Thr Ser Phe Lys Tyr Ser Phe
805

<210> 1155

<211> 729

<212> PRT

<213> Escherichia coli

<400> 1155

Met Leu Ser Thr Gln Phe Asn Arg Asp Asn Gln Tyr Gln Ala Ile Thr
1 5 10 15

Lys Pro Ser Leu Leu Ala Gly Cys Ile Ala Leu Ala Leu Leu Pro Ser
20 25 30

Ala Ala Phe Ala Ala Pro Ala Thr Glu Glu Thr Val Ile Val Glu Gly
 35 40 45

Ser Ala Thr Ala Pro Asp Asp Gly Glu Asn Asp Tyr Ser Val Thr Ser
 50 55 60

Thr Ser Ala Gly Thr Lys Met Gln Met Thr Gln Arg Asp Ile Pro Gln
 65 70 75 80

Ser Val Thr Ile Val Ser Gln Gln Arg Met Glu Asp Gln Gln Leu Gln
 85 90 95

Thr Leu Gly Glu Val Met Glu Asn Thr Leu Gly Ile Ser Lys Ser Gln
 100 105 110

Ala Asp Ser Asp Arg Ala Leu Tyr Tyr Ser Arg Gly Phe Gln Ile Asp
 115 120 125

Asn Tyr Met Val Asp Gly Ile Pro Thr Tyr Phe Glu Ser Arg Trp Asn
 130 135 140

Leu Gly Asp Ala Leu Ser Asp Met Ala Leu Phe Glu Arg Val Glu Val
 145 150 155 160

Val Arg Gly Ala Thr Gly Leu Met Thr Gly Thr Gly Asn Pro Ser Ala
 165 170 175

Ala Ile Asn Met Val Arg Lys His Ala Thr Ser Arg Glu Phe Lys Gly
 180 185 190

Asp Val Ser Ala Glu Tyr Gly Ser Trp Asn Lys Glu Arg Tyr Val Ala
 195 200 205

Asp Leu Gln Ser Pro Leu Thr Glu Asp Gly Lys Ile Arg Ala Arg Ile
 210 215 220

Val Gly Gly Tyr Gln Asn Asn Asp Ser Trp Leu Asp Arg Tyr Asn Ser
 225 230 235 240

Glu Lys Thr Phe Phe Ser Gly Ile Val Asp Ala Asp Leu Gly Asp Leu
 245 250 255

Thr Thr Leu Ser Ala Gly Tyr Glu Tyr Gln Arg Ile Asp Val Asn Ser
260 265 270

Pro Thr Trp Gly Gly Leu Pro Arg Trp Asn Thr Asp Gly Ser Ser Asn
275 280 285

Ser Tyr Asp Arg Ala Arg Ser Thr Ala Pro Asp Trp Ala Tyr Asn Asp
290 295 300

Lys Glu Ile Asn Lys Val Phe Met Thr Leu Lys Gln Gln Phe Ala Asp
305 310 315 320

Thr Trp Gln Ala Thr Leu Asn Ala Thr His Ser Glu Val Glu Phe Asp
325 330 335

Ser Lys Met Met Tyr Val Asp Ala Tyr Val Asn Lys Ala Asp Gly Met
340 345 350

Leu Val Gly Pro Tyr Ser Asn Tyr Gly Pro Gly Phe Asp Tyr Val Gly
355 360 365

Gly Thr Gly Trp Asn Ser Gly Lys Arg Lys Val Asp Ala Leu Asp Leu
370 375 380

Phe Ala Asp Gly Ser Tyr Glu Leu Phe Gly Arg Gln His Asn Leu Met
385 390 395 400

Phe Gly Gly Ser Tyr Ser Lys Gln Asn Asn Arg Tyr Phe Ser Ser Trp
405 410 415

Ala Asn Ile Phe Pro Asp Glu Ile Gly Ser Phe Tyr Asn Phe Asn Gly
420 425 430

Asn Phe Pro Gln Thr Asp Trp Ser Pro Gln Ser Leu Ala Gln Asp Asp
435 440 445

Thr Thr His Met Lys Ser Leu Tyr Ala Ala Thr Arg Val Thr Leu Ala
450 455 460

Asp Pro Leu His Leu Ile Leu Gly Ala Arg Tyr Thr Asn Trp Arg Val
465 470 475 480

Asp Thr Leu Thr Tyr Ser Met Glu Lys Asn His Thr Thr Pro Tyr Ala
 485 490 495

Gly Leu Val Phe Asp Ile Asn Asp Asn Trp Ser Thr Tyr Ala Ser Tyr
 500 505 510

Thr Ser Ile Phe Gln Pro Gln Asn Asp Arg Asp Ser Ser Gly Lys Tyr
 515 520 525

Leu Ala Pro Ile Thr Gly Asn Asn Tyr Glu Leu Gly Leu Lys Ser Asp
 530 535 540

Trp Met Asn Ser Arg Leu Thr Thr Thr Leu Ala Ile Phe Arg Ile Glu
 545 550 555 560

Gln Asp Asn Val Ala Gln Ser Thr Gly Thr Pro Ile Pro Gly Ser Asn
 565 570 575

Gly Glu Thr Ala Tyr Lys Ala Val Asp Gly Thr Val Ser Lys Gly Val
 580 585 590

Glu Phe Glu Leu Asn Gly Ala Ile Thr Asp Asn Trp Gln Leu Thr Phe
 595 600 605

Gly Ala Thr Arg Tyr Ile Ala Glu Asp Asn Glu Gly Asn Ala Val Asn
 610 615 620

Pro Asn Leu Pro Arg Thr Thr Val Lys Met Phe Thr Ser Tyr Arg Leu
 625 630 635 640

Pro Val Met Pro Glu Leu Thr Val Gly Gly Gly Val Asn Trp Gln Asn
 645 650 655

Arg Val Tyr Thr Asp Thr Val Thr Pro Tyr Gly Thr Phe Arg Ala Glu
 660 665 670

Gln Gly Ser Tyr Ala Leu Val Asp Leu Phe Thr Arg Tyr Gln Val Thr
 675 680 685

Lys Asn Phe Ser Leu Gln Gly Asn Val Asn Asn Leu Phe Asp Lys Thr
 690 695 700

Tyr Asp Thr Asn Val Glu Gly Ser Ile Val Tyr Gly Thr Pro Arg Asn

705

710

715

720

Phe Ser Ile Thr Gly Thr Tyr Gln Phe
725

<210> 1156

<211> 519

<212> PRT

<213> Haemophilus influenzae

<400> 1156

Met Leu Ser Val Leu Ser Ile Asn Tyr Arg Tyr Tyr Leu Met Glu Leu
1 5 10 15

Ile Asp Phe Ser Ser Ser Val Trp Ser Ile Val Pro Ala Leu Leu Ala
20 25 30

Ile Ile Leu Ala Ile Ala Thr Arg Arg Val Leu Val Ser Leu Ser Ala
35 40 45

Gly Ile Ile Ile Gly Ser Leu Met Leu Ser Asp Trp Gln Ile Gly Ser
50 55 60

Ala Phe Asn Tyr Leu Val Lys Asn Val Val Ser Leu Val Tyr Ala Asp
65 70 75 80

Gly Glu Ile Asn Ser Asn Met Asn Ile Val Leu Phe Leu Leu Leu Leu
85 90 95

Gly Val Leu Thr Ala Leu Leu Thr Val Ser Gly Ser Asn Arg Ala Phe
100 105 110

Ala Glu Trp Ala Gln Ser Arg Ile Lys Gly Arg Arg Gly Ala Lys Leu
115 120 125

Leu Ala Ala Ser Leu Val Phe Val Thr Phe Ile Asp Asp Tyr Phe His
130 135 140

Ser Leu Ala Val Gly Ala Ile Ala Arg Pro Val Thr Asp Arg Phe Lys
145 150 155 160

Val Ser Arg Ala Lys Leu Ala Tyr Ile Leu Asp Ser Thr Ala Ala Pro
165 170 175

Met Cys Val Met Met Pro Val Ser Ser Trp Gly Ala Tyr Ile Ile Thr
 180 185 190

Leu Ile Gly Gly Leu Leu Ala Thr Tyr Ser Ile Thr Glu Tyr Thr Pro
 195 200 205

Ile Gly Ala Phe Val Ala Met Ser Ser Met Asn Phe Tyr Ala Ile Phe
 210 215 220

Ser Ile Ile Met Val Phe Phe Val Ala Tyr Phe Ser Phe Asp Ile Ala
 225 230 235 240

Ser Met Val Arg His Glu Lys Leu Ala Leu Lys Asn Thr Glu Asp Gln
 245 250 255

Leu Glu Glu Glu Thr Gly Thr Lys Gly Gln Val Arg Asn Leu Ile Leu
 260 265 270

Pro Ile Leu Val Leu Ile Ile Ala Thr Val Ser Met Met Ile Tyr Thr
 275 280 285

Gly Ala Glu Ala Leu Ala Ala Asp Gly Lys Val Phe Ser Val Leu Gly
 290 295 300

Thr Phe Glu Asn Thr Val Val Gly Thr Ser Leu Val Val Gly Gly Phe
 305 310 315 320

Cys Ser Ile Ile Ile Ser Thr Leu Leu Ile Ile Leu Asp Arg Gln Val
 325 330 335

Ser Val Pro Glu Tyr Val Arg Ser Trp Ile Val Gly Ile Lys Ser Met
 340 345 350

Ser Gly Ala Ile Ala Ile Leu Phe Phe Ala Trp Thr Ile Asn Lys Ile
 355 360 365

Val Gly Asp Met Gln Thr Gly Lys Tyr Leu Ser Ser Leu Val Ser Gly
 370 375 380

Asn Ile Pro Met Gln Phe Leu Pro Val Ile Leu Phe Val Leu Gly Ala
 385 390 395 400

Ala Met Ala Phe Ser Thr Gly Thr Ser Trp Gly Thr Phe Gly Ile Met
405 410 415

Leu Pro Ile Ala Ala Ala Met Ala Ala Asn Ala Ala Pro Glu Leu Leu
420 425 430

Leu Pro Cys Leu Ser Ala Val Met Ala Gly Ala Val Cys Gly Asp His
435 440 445

Cys Ser Pro Val Ser Asp Thr Thr Ile Leu Ser Ser Thr Gly Ala Lys
450 455 460

Cys Asn His Ile Asp His Val Thr Thr Gln Leu Pro Tyr Ala Ala Thr
465 470 475 480

Val Ala Thr Ala Thr Ser Ile Gly Tyr Ile Val Val Gly Phe Thr Tyr
485 490 495

Ser Gly Leu Ala Gly Phe Ala Ala Thr Ala Val Ser Leu Ile Val Ile
500 505 510

Ile Phe Ala Val Lys Lys Arg
515

<210> 1157

<211> 396

<212> PRT

<213> Pseudomonas stutzeri

<400> 1157

Met Gln Val Ile Asp Arg Arg Lys Ala Leu Ser Ile Ala Pro Ile Trp
1 5 10 15

Arg Leu Ala Phe Arg Pro Phe Phe Leu Ala Gly Ser Leu Tyr Ala Leu
20 25 30

Leu Ala Ile Pro Leu Trp Val Ala Ala Trp Thr Gly Leu Trp Pro Gly
35 40 45

Phe Gln Pro Thr Gly Gly Trp Leu Ala Trp His Arg His Glu Met Leu
50 55 60

Phe Gly Phe Ala Met Ala Ile Val Ala Gly Phe Leu Leu Thr Ala Val
65 70 75 80

Gln Thr Trp Thr Gly Gln Thr Ala Pro Ser Gly Asn Arg Leu Val Gly
85 90 95

Leu Ala Ala Val Trp Leu Ala Ala Arg Leu Gly Trp Leu Phe Gly Leu
100 105 110

Pro Ala Ala Trp Leu Ala Pro Leu Asp Leu Leu Phe Leu Val Ala Leu
115 120 125

Val Trp Met Met Ala Gln Met Leu Trp Ala Val Arg Gln Lys Arg Asn
130 135 140

Tyr Pro Ile Val Val Val Leu Ser Leu Met Leu Gly Ala Asp Val Leu
145 150 155 160

Ile Leu Thr Gly Leu Leu Gln Gly Asn Asp Ala Leu Gln Arg Gln Gly
165 170 175

Val Leu Ala Gly Leu Trp Leu Val Ala Ala Leu Met Ala Leu Ile Gly
180 185 190

Gly Arg Val Ile Pro Phe Phe Thr Gln Arg Gly Leu Gly Lys Val Asp
195 200 205

Ala Val Lys Pro Trp Val Trp Leu Asp Val Ala Leu Leu Val Gly Thr
210 215 220

Gly Val Ile Ala Leu Leu His Ala Phe Gly Val Ala Met Arg Pro Gln
225 230 235 240

Pro Leu Leu Gly Leu Leu Phe Val Ala Ile Gly Val Gly His Leu Leu
245 250 255

Arg Leu Met Arg Trp Tyr Asp Lys Gly Ile Trp Lys Val Gly Leu Leu
260 265 270

Trp Ser Leu His Val Ala Met Leu Trp Leu Val Val Ala Ala Phe Gly
275 280 285

Leu Ala Leu Trp His Phe Gly Leu Leu Ala Gln Ser Ser Pro Ser Leu
290 295 300

His Ala Leu Ser Val Gly Ser Met Ser Gly Leu Ile Leu Ala Met Ile
305 310 315 320

Ala Arg Val Thr Leu Gly His Thr Gly Arg Pro Leu Gln Leu Pro Ala
325 330 335

Gly Ile Ile Gly Ala Phe Val Leu Phe Asn Leu Gly Thr Ala Ala Arg
340 345 350

Val Phe Leu Ser Val Ala Trp Pro Val Gly Gly Leu Trp Leu Ala Ala
355 360 365

Val Cys Trp Thr Leu Ala Phe Ala Leu Tyr Val Trp Arg Tyr Ala Pro
370 375 380

Met Leu Val Ala Ala Arg Val Asp Gly His Pro Gly
385 390 395

<210> 1158

<211> 212

<212> PRT

<213> Haemophilus influenzae

<400> 1158

Met Asn Gln Phe Phe Ile Thr Ser Ile Asn Ile Ile Lys Lys Gln Glu
1 5 10 15

Gln Met Glu Phe Leu Ile Gly Phe Phe Thr Glu Tyr Gly Tyr Trp Ala
20 25 30

Val Leu Phe Val Leu Ile Ile Cys Gly Phe Gly Val Pro Ile Pro Glu
35 40 45

Asp Ile Thr Leu Val Ser Gly Gly Val Ile Ala Gly Leu Tyr Pro Glu
50 55 60

Asn Val Asn Ser His Leu Met Leu Leu Val Ser Met Ile Gly Val Leu
65 70 75 80

Ala Gly Asp Ser Cys Met Tyr Trp Leu Gly Arg Ile Tyr Gly Thr Lys
85 90 95

Ile Leu Arg Phe Arg Pro Ile Arg Arg Ile Val Thr Leu Gln Arg Leu

100	105	110
Arg Met Val Arg Glu Lys Phe Ser Gln Tyr Gly Asn Arg Val Leu Phe		
115	120	125
Val Ala Arg Phe Leu Pro Gly Leu Arg Ala Pro Ile Tyr Met Val Ser		
130	135	140
Gly Ile Thr Arg Arg Val Ser Tyr Val Arg Phe Val Leu Ile Asp Phe		
145	150	155 160
Cys Ala Ala Ile Ile Ser Val Pro Ile Trp Ile Tyr Leu Gly Glu Leu		
165	170	175
Gly Ala Lys Asn Leu Asp Trp Leu His Thr Gln Ile Gln Lys Gly Gln		
180	185	190
Ile Val Ile Tyr Ile Phe Ile Gly Tyr Leu Tyr Tyr Ser Phe Leu Glu		
195	200	205
Met Glu Lys Ile		
210		

<210> 1159
 <211> 151
 <212> PRT
 <213> Aquifex aeolicus
 <400> 1159

Met Leu Asn Ile Met Arg Lys Leu Leu Thr Leu Ile Val Val Phe Val	
1 5 10 15	
Ala Leu Ser Phe Gly Ala Pro Lys Ile Val Val Lys His Pro Trp Val	
20 25 30	
Met Glu Pro Pro Pro Gly Pro Asn Thr Thr Met Met Gly Met Ile Ile	
35 40 45	
Val Asn Glu Gly Asp Glu Pro Asp Tyr Leu Ile Gly Ala Lys Thr Asp	
50 55 60	
Ile Ala Gln Arg Val Glu Leu His Lys Thr Val Ile Glu Asn Asp Val	
65 70 75 80	

Ala Lys Met Val Pro Gln Glu Arg Ile Glu Ile Pro Pro Lys Gly Lys
85 90 95

Val Glu Phe Lys His His Gly Tyr His Val Met Ile Ile Gly Leu Lys
100 105 110

Lys Arg Ile Lys Glu Gly Asp Lys Val Lys Val Glu Leu Ile Phe Glu
115 120 125

Lys Ser Gly Lys Ile Thr Val Glu Ala Pro Val Val Lys Lys His Arg
130 135 140

Met Lys His His Met His His
145 150

<210> 1160

<211> 148

<212> PRT

<213> Helicobacter pylori

<400> 1160

Met Gly Phe Leu Asn Gly Tyr Phe Leu Trp Val Lys Ala Phe His Val
1 5 10 15

Ile Ala Val Ile Ser Trp Met Ala Ala Leu Phe Tyr Leu Pro Arg Leu
20 25 30

Phe Val Tyr His Ala Glu Asn Ala His Lys Lys Glu Phe Val Gly Val
35 40 45

Val Gln Ile Gln Glu Lys Lys Leu Tyr Ser Phe Ile Ala Ser Pro Ala
50 55 60

Met Gly Phe Thr Leu Ile Thr Gly Ile Leu Met Leu Leu Ile Glu Pro
65 70 75 80

Thr Leu Phe Lys Ser Gly Gly Trp Leu His Ala Lys Leu Ala Leu Val
85 90 95

Val Leu Leu Leu Ala Tyr His Phe Tyr Cys Lys Lys Cys Met Arg Glu
100 105 110

Leu Glu Lys Asp Pro Thr Arg Arg Asn Ala Arg Phe Tyr Arg Val Phe

115	120	125
Asn Glu Ala Pro Thr Ile Leu Met Ile Leu Ile Val Ile Leu Val Val		
130	135	140
Val Lys Pro Phe		
145		
<210> 1161		
<211> 380		
<212> PRT		
<213> Escherichia coli		
<400> 1161		
Met Ala Tyr Gly Val Phe Arg Lys Phe Met Lys Lys Arg Lys Thr Val		
1	5	10 15
Lys Lys Arg Tyr Val Ile Ala Leu Val Ile Val Ile Ala Gly Leu Ile		
20	25	30
Thr Leu Trp Arg Ile Leu Asn Ala Pro Val Pro Thr Tyr Gln Thr Leu		
35	40	45
Ile Val Arg Pro Gly Asp Leu Gln Gln Ser Val Leu Ala Thr Gly Lys		
50	55	60
Leu Asp Ala Leu Arg Lys Val Asp Val Gly Ala Gln Val Ser Gly Gln		
65	70	75 80
Leu Lys Thr Leu Ser Val Ala Ile Gly Asp Lys Val Lys Lys Asp Gln		
85	90	95
Leu Leu Gly Val Ile Asp Pro Glu Gln Ala Glu Asn Gln Ile Lys Glu		
100	105	110
Val Glu Ala Thr Leu Met Glu Leu Arg Ala Gln Arg Gln Gln Ala Glu		
115	120	125
Ala Glu Leu Lys Leu Ala Arg Val Thr Tyr Ser Arg Gln Gln Arg Leu		
130	135	140
Ala Gln Thr Lys Ala Val Ser Gln Gln Asp Leu Asp Thr Ala Ala Thr		
145	150	155 160

Glu Met Ala Val Lys Gln Ala Gln Ile Gly Thr Ile Asp Ala Gln Ile
165 170 175

Lys Arg Asn Gln Ala Ser Leu Asp Thr Ala Lys Thr Asn Leu Asp Tyr
180 185 190

Thr Arg Ile Val Ala Pro Met Ala Gly Glu Val Thr Gln Ile Thr Thr
195 200 205

Leu Gln Gly Gln Thr Val Ile Ala Ala Gln Gln Ala Pro Asn Ile Leu
210 215 220

Thr Leu Ala Asp Met Ser Ala Met Leu Val Lys Ala Gln Val Ser Glu
225 230 235 240

Ala Asp Val Ile His Leu Lys Pro Gly Gln Lys Ala Trp Phe Thr Val
245 250 255

Leu Gly Asp Pro Leu Thr Arg Tyr Glu Gly Gln Ile Lys Asp Val Leu
260 265 270

Pro Thr Pro Glu Lys Val Asn Asp Ala Ile Phe Tyr Tyr Ala Arg Phe
275 280 285

Glu Val Pro Asn Pro Asn Gly Leu Leu Arg Leu Asp Met Thr Ala Gln
290 295 300

Val His Ile Gln Leu Thr Asp Val Lys Asn Val Leu Thr Ile Pro Leu
305 310 315 320

Ser Ala Leu Gly Asp Pro Val Gly Asp Asn Arg Tyr Lys Val Lys Leu
325 330 335

Leu Arg Asn Gly Glu Thr Arg Glu Arg Glu Val Thr Ile Gly Ala Arg
340 345 350

Asn Asp Thr Asp Val Glu Ile Val Lys Gly Leu Glu Ala Gly Asp Glu
355 360 365

Val Val Ile Gly Glu Ala Lys Pro Gly Ala Ala Gln
370 375 380

<210> 1162
 <211> 349
 <212> PRT
 <213> Haemophilus influenzae

<220>
 <221> misc_feature
 <222> (201)..(201)
 <223> Xaa can be any naturally occurring amino acid

<400> 1162

Met Leu Glu Met Leu Lys Ser Trp Tyr Ser Arg Arg Leu Ser Asp Pro
 1 5 10 15

Gln Ala Met Gly Leu Leu Ala Ile Leu Leu Phe Gly Phe Ile Ser Ile
 20 25 30

Tyr Phe Phe Gly Asp Leu Ile Ala Pro Leu Leu Ile Ala Leu Val Leu
 35 40 45

Ser Tyr Leu Leu Glu Ile Pro Ile Asn Phe Leu Asn Gln Tyr Leu Lys
 50 55 60

Cys Pro Arg Met Leu Ala Thr Ile Leu Ile Phe Gly Ser Phe Ile Gly
 65 70 75 80

Leu Ala Ala Val Phe Phe Leu Val Leu Val Pro Met Leu Trp Asn Gln
 85 90 95

Thr Ile Ser Leu Leu Ser Asp Leu Pro Ala Met Phe Asn Lys Ser Asn
 100 105 110

Glu Trp Leu Leu Asn Leu Pro Lys Asn Tyr Pro Glu Leu Ile Asp Tyr
 115 120 125

Ser Met Val Asp Ser Ile Phe Asn Ser Val Arg Glu Lys Ile Leu Gly
 130 135 140

Phe Gly Glu Ser Ala Val Lys Leu Ser Leu Ala Ser Ile Met Asn Leu
 145 150 155 160

Val Ser Leu Gly Ile Tyr Ala Phe Leu Val Pro Leu Met Met Phe Phe
 165 170 175

Met Leu Lys Asp Lys Ser Glu Leu Leu Gln Gly Val Ser Arg Phe Leu
180 185 190

Pro Lys Asn Arg Asn Leu Ala Phe Xaa Arg Trp Lys Glu Met Gln Gln
195 200 205

Gln Ile Ser Asn Tyr Ile His Gly Lys Leu Leu Glu Ile Leu Ile Val
210 215 220

Thr Leu Ile Thr Tyr Ile Ile Phe Leu Ile Phe Gly Leu Asn Tyr Pro
225 230 235 240

Leu Leu Leu Ala Phe Ala Val Gly Leu Ser Val Leu Val Pro Tyr Ile
245 250 255

Gly Ala Val Ile Val Thr Ile Pro Val Ala Leu Val Ala Leu Phe Gln
260 265 270

Phe Gly Ile Ser Pro Thr Phe Trp Tyr Ile Ile Ile Ala Phe Ala Val
275 280 285

Ser Gln Leu Leu Asp Gly Asn Leu Leu Val Pro Tyr Leu Phe Ser Glu
290 295 300

Ala Val Asn Leu His Pro Leu Ile Ile Ile Ile Ser Val Leu Ile Phe
305 310 315 320

Gly Gly Leu Trp Gly Phe Trp Gly Val Phe Phe Ala Ile Pro Leu Ala
325 330 335

Thr Leu Val Lys Ala Val Ile Asn Ala Leu Pro Gln Asp
340 345

<210> 1163

<211> 327

<212> PRT

<213> Rhizobium etli

<400> 1163

Met Arg Ile Leu Val Asn Gly Ala Gly Val Ala Gly Leu Thr Val Ala
1 5 10 15

Trp Gln Leu Tyr Arg His Gly Phe Arg Val Thr Leu Ala Glu Arg Ala
20 25 30

Gly Thr Val Gly Ala Gly Ala Ser Gly Phe Ala Gly Gly Met Leu Ala
 35 40 45

Pro Trp Cys Glu Arg Glu Ser Ala Glu Glu Pro Val Leu Thr Leu Gly
 50 55 60

Arg Leu Ala Ala Asp Trp Trp Glu Ala Ala Leu Pro Gly His Val His
 65 70 75 80

Arg Arg Gly Thr Leu Val Val Ala Gly Gly Arg Asp Thr Gly Glu Leu
 85 90 95

Asp Arg Phe Ser Arg Arg Thr Ser Gly Trp Glu Trp Leu Asp Glu Val
 100 105 110

Ala Ile Ala Ala Leu Glu Pro Asp Leu Ala Gly Arg Phe Arg Arg Ala
 115 120 125

Leu Phe Phe Arg Gln Glu Ala His Leu Asp Pro Arg Gln Ala Leu Ala
 130 135 140

Ala Leu Ala Ala Gly Leu Glu Asp Ala Arg Met Arg Leu Thr Leu Gly
 145 150 155 160

Val Val Gly Glu Ser Asp Val Asp His Asp Arg Val Val Asp Cys Thr
 165 170 175

Gly Ala Ala Gln Ile Gly Arg Leu Pro Gly Leu Arg Gly Val Arg Gly
 180 185 190

Glu Met Leu Cys Val Glu Thr Thr Glu Val Ser Leu Ser Arg Pro Val
 195 200 205

Arg Leu Leu His Pro Arg His Pro Ile Tyr Ile Val Pro Arg Asp Lys
 210 215 220

Asn Arg Phe Met Val Gly Ala Thr Met Ile Glu Ser Asp Asp Gly Gly
 225 230 235 240

Pro Ile Thr Ala Arg Ser Leu Met Glu Leu Leu Asn Ala Ala Tyr Ala
 245 250 255

Met His Pro Ala Phe Gly Glu Ala Arg Val Thr Glu Thr Gly Ala Gly
 260 265 270

Val Arg Pro Ala Tyr Pro Asp Asn Leu Pro Arg Val Thr Gln Glu Gly
 275 280 285

Arg Thr Leu His Val Asn Gly Leu Tyr Arg His Gly Phe Leu Leu Ala
 290 295 300

Pro Ala Met Ala Gly Glu Val Ala Arg Arg Leu Leu Thr Glu Gln Gly
 305 310 315 320

Gln Pro Glu Arg Arg Ala Ser
 325

<210> 1164
 <211> 245
 <212> PRT
 <213> Haemophilus influenzae
 <400> 1164

Met Asp Ile Phe Phe Val Ile Ser Gly Phe Leu Ile Thr Gly Ile Ile
 1 5 10 15

Ile Thr Glu Ile Gln Gln Asn Ser Phe Ser Leu Lys Gln Phe Tyr Thr
 20 25 30

Arg Arg Ile Lys Arg Ile Tyr Pro Ala Phe Ile Thr Val Met Ala Leu
 35 40 45

Val Ser Phe Ile Ala Ser Ala Ile Phe Ile Tyr Asn Asp Phe Asn Lys
 50 55 60

Leu Arg Lys Thr Ile Glu Leu Ala Ile Ala Phe Leu Ser Asn Phe Tyr
 65 70 75 80

Leu Gly Leu Thr Gln Gly Tyr Phe Asp Leu Ser Ala Asn Glu Asn Pro
 85 90 95

Val Leu His Ile Trp Ser Leu Ala Val Glu Gly Gln Tyr Tyr Leu Ile
 100 105 110

Phe Pro Leu Ile Leu Ile Leu Ala Tyr Lys Lys Phe Arg Glu Val Lys

115 120 125
 Val Leu Phe Ile Ile Thr Leu Ile Leu Phe Phe Ile Leu Leu Ala Thr
 130 135 140

 Ser Phe Val Ser Ala Asn Phe Tyr Lys Glu Val Leu His Gln Pro Asn
 145 150 155 160

 Ile Tyr Tyr Leu Ser Asn Leu Arg Phe Pro Glu Leu Leu Val Gly Ser
 165 170 175

 Leu Leu Ala Ile Tyr His Asn Leu Ser Asn Lys Val Gln Leu Ser Lys
 180 185 190

 Gln Val Asn Asn Ile Leu Ala Ile Leu Ser Thr Leu Leu Leu Phe Ser
 195 200 205

 Cys Leu Phe Leu Met Asn Asn Asn Ile Ala Phe Ile Pro Gly Ile Thr
 210 215 220

 Leu Ile Leu Pro Cys Ile Phe Thr Ala Leu Ile Ile His Thr Thr Ser
 225 230 235 240

 Gln Asn Asn Ile Arg
 245

<210> 1165
 <211> 224
 <212> PRT
 <213> Archaeoglobus fulgidus

<400> 1165

Met Ala Ala Ile Asn Gln Phe Asp Ile Asp Leu Phe Ile Arg Ile Leu
 1 5 10 15

 Pro Asp Leu Ala Phe Gly Ala Ser Val Thr Leu Lys Leu Thr Leu Ile
 20 25 30

 Ser Ile Phe Phe Gly Leu Ile Ile Gly Thr Ile Ala Gly Leu Gly Arg
 35 40 45

 Val Ser Lys Asn Pro Leu Pro Phe Ala Ile Ser Thr Ala Tyr Val Glu
 50 55 60

Val Ile Arg Gly Thr Pro Leu Leu Val Gln Ile Leu Ile Val Tyr Phe
65 70 75 80

Gly Leu Pro Ala Ile Gly Ile Asn Leu Gln Pro Glu Pro Ala Gly Ile
85 90 95

Ile Ala Leu Ser Ile Cys Ser Gly Ala Tyr Ile Ala Glu Ile Val Arg
100 105 110

Ala Gly Ile Glu Ser Ile Pro Ile Gly Gln Met Glu Ala Ala Arg Ser
115 120 125

Leu Gly Met Thr Tyr Leu Gln Ala Met Arg Tyr Val Ile Phe Pro Gln
130 135 140

Ala Phe Arg Asn Ile Leu Pro Ala Leu Gly Asn Glu Phe Ile Ala Leu
145 150 155 160

Leu Lys Asp Ser Ser Leu Leu Ser Val Ile Ser Ile Val Glu Leu Thr
165 170 175

Arg Val Gly Arg Gln Ile Val Asn Thr Thr Phe Asn Ala Trp Thr Pro
180 185 190

Phe Leu Gly Val Ala Leu Phe Tyr Leu Met Met Thr Ile Pro Leu Ser
195 200 205

Arg Leu Val Ala Tyr Ser Gln Lys Lys Leu Gly Thr Tyr Gln Val Lys
210 215 220

<210> 1166

<211> 457

<212> PRT

<213> Escherichia coli

<400> 1166

Met Arg Ile His Ile Leu Gly Ile Cys Gly Thr Phe Met Gly Gly Leu
1 5 10 15

Ala Met Leu Ala Arg Gln Leu Gly His Glu Val Thr Gly Ser Asp Ala
20 25 30

Asn Val Tyr Pro Pro Met Ser Thr Leu Leu Glu Lys Gln Gly Ile Glu

35	40	45
Leu Ile Gln Gly Tyr Asp Ala Ser Gln Leu Glu Pro Gln Pro Asp Leu		
50	55	60
Val Ile Ile Gly Asn Ala Met Thr Arg Gly Asn Pro Cys Val Glu Ala		
65	70	75
Val Leu Glu Lys Asn Ile Pro Tyr Met Ser Gly Pro Gln Trp Leu His		
	85	90
Asp Phe Val Leu Arg Asp Arg Trp Val Leu Ala Val Ala Gly Thr His		
	100	105
Gly Lys Thr Thr Thr Ala Gly Met Ala Thr Trp Ile Leu Glu Gln Cys		
	115	120
Gly Tyr Lys Pro Gly Phe Val Ile Gly Gly Val Pro Gly Asn Phe Glu		
	130	135
Val Ser Ala His Leu Gly Glu Ser Asp Phe Phe Val Ile Glu Ala Asp		
145	150	155
Glu Tyr Asp Cys Ala Phe Phe Asp Lys Arg Ser Lys Phe Val His Tyr		
	165	170
Cys Pro Arg Thr Leu Ile Leu Asn Asn Leu Glu Phe Asp His Ala Asp		
	180	185
Ile Phe Asp Asp Leu Lys Ala Ile Gln Lys Gln Phe His His Leu Val		
	195	200
Arg Ile Val Pro Gly Gln Gly Arg Ile Ile Trp Pro Glu Asn Asp Ile		
	210	215
Asn Leu Lys Gln Thr Met Ala Met Gly Cys Trp Ser Glu Gln Glu Leu		
225	230	235
Val Gly Glu Gln Gly His Trp Gln Ala Lys Lys Leu Thr Thr Asp Ala		
	245	250
Ser Glu Trp Glu Val Leu Leu Asp Gly Glu Lys Val Gly Glu Val Lys		
	260	265
		270

Trp Ser Leu Val Gly Glu His Asn Met His Asn Gly Leu Met Ala Ile
 275 280 285

Ala Ala Ala Arg His Val Gly Val Ala Pro Ala Asp Ala Ala Asn Ala
 290 295 300

Leu Gly Ser Phe Ile Asn Ala Arg Arg Arg Leu Glu Leu Arg Gly Glu
 305 310 315 320

Ala Asn Gly Val Thr Val Tyr Asp Asp Phe Ala His His Pro Thr Ala
 325 330 335

Ile Leu Ala Thr Leu Ala Ala Leu Arg Gly Lys Val Gly Gly Thr Ala
 340 345 350

Arg Ile Ile Ala Val Leu Glu Pro Arg Ser Asn Thr Met Lys Met Gly
 355 360 365

Ile Cys Lys Asp Asp Leu Ala Pro Ser Leu Gly Arg Ala Asp Glu Val
 370 375 380

Phe Leu Leu Gln Pro Ala His Ile Pro Trp Gln Val Ala Glu Val Ala
 385 390 395 400

Glu Ala Cys Val Gln Pro Ala His Trp Ser Gly Asp Val Asp Thr Leu
 405 410 415

Ala Asp Met Val Val Lys Thr Ala Gln Pro Gly Asp His Ile Leu Val
 420 425 430

Met Ser Asn Gly Gly Phe Gly Gly Ile His Gln Lys Leu Leu Asp Gly
 435 440 445

Leu Ala Lys Lys Ala Glu Ala Ala Gln
 450 455

<210> 1167
 <211> 913
 <212> PRT
 <213> Haemobartonella felis
 <400> 1167

Met Lys Lys Ala Ile Lys Leu Asn Leu Ile Thr Leu Gly Leu Ile Asn
 1 5 10 15

Thr Ile Gly Met Thr Ile Thr Gln Ala Gln Ala Glu Glu Thr Leu Gly
 20 25 30

Gln Ile Asp Val Val Glu Lys Val Ile Ser Asn Asp Lys Lys Pro Phe
 35 40 45

Thr Glu Ala Lys Ala Lys Ser Thr Arg Glu Asn Val Phe Lys Glu Thr
 50 55 60

Gln Thr Ile Asp Gln Val Ile Arg Ser Ile Pro Gly Ala Phe Thr Gln
 65 70 75 80

Gln Asp Lys Gly Ser Gly Val Val Ser Val Asn Ile Arg Gly Glu Asn
 85 90 95

Gly Leu Gly Arg Val Asn Thr Met Val Asp Gly Val Thr Gln Thr Phe
 100 105 110

Tyr Ser Thr Ala Leu Asp Ser Gly Gln Ser Gly Gly Ser Ser Gln Phe
 115 120 125

Gly Ala Ala Ile Asp Pro Asn Phe Ile Ala Gly Val Asp Val Asn Lys
 130 135 140

Ser Asn Phe Ser Gly Ala Ser Gly Ile Asn Ala Leu Ala Gly Ser Ala
 145 150 155 160

Asn Phe Arg Thr Leu Gly Val Asn Asp Val Ile Thr Asp Asp Lys Pro
 165 170 175

Phe Gly Ile Ile Leu Lys Gly Met Thr Gly Ser Asn Ala Thr Lys Ser
 180 185 190

Asn Phe Met Thr Met Ala Ala Gly Arg Lys Trp Leu Asp Asn Gly Gly
 195 200 205

Tyr Val Gly Val Val Tyr Gly Tyr Ser Gln Arg Glu Val Ser Gln Asp
 210 215 220

Tyr Arg Ile Gly Gly Gly Glu Arg Leu Ala Ser Leu Gly Gln Asp Ile

225		230		235		240									
Leu	Ala	Lys	Glu	Lys	Glu	Ala	Tyr	Phe	Arg	Asn	Ala	Gly	Tyr	Ile	Leu
			245						250					255	
Asn	Pro	Glu	Gly	Gln	Trp	Thr	Pro	Asp	Leu	Ser	Lys	Lys	His	Trp	Ser
		260						265					270		
Cys	Asn	Lys	Pro	Asp	Tyr	Gln	Lys	Asn	Gly	Asp	Cys	Ser	Tyr	Tyr	Arg
	275						280					285			
Ile	Gly	Ser	Ala	Ala	Lys	Thr	Arg	Arg	Glu	Ile	Leu	Gln	Glu	Leu	Leu
	290					295					300				
Thr	Asn	Gly	Lys	Lys	Pro	Lys	Asp	Ile	Glu	Lys	Leu	Gln	Lys	Gly	Asn
305					310					315					320
Asp	Gly	Ile	Glu	Glu	Thr	Asp	Lys	Ser	Phe	Glu	Arg	Asn	Lys	Asp	Gln
			325						330					335	
Tyr	Ser	Val	Ala	Pro	Ile	Glu	Pro	Gly	Ser	Leu	Gln	Ser	Arg	Ser	Arg
		340						345					350		
Ser	His	Leu	Leu	Lys	Phe	Glu	Tyr	Gly	Asp	Asp	His	Gln	Asn	Leu	Gly
		355					360					365			
Ala	Gln	Leu	Arg	Thr	Leu	Asp	Asn	Lys	Ile	Gly	Ser	Arg	Lys	Ile	Glu
	370					375					380				
Asn	Arg	Asn	Tyr	Gln	Val	Asn	Tyr	Asn	Phe	Asn	Asn	Asn	Ser	Tyr	Leu
385					390					395					400
Asp	Leu	Asn	Leu	Met	Ala	Ala	His	Asn	Ile	Gly	Lys	Thr	Ile	Tyr	Pro
			405						410					415	
Lys	Gly	Gly	Phe	Phe	Ala	Gly	Trp	Gln	Val	Ala	Asp	Lys	Leu	Ile	Thr
		420						425					430		
Lys	Asn	Val	Ala	Asn	Ile	Val	Asp	Ile	Asn	Asn	Ser	His	Thr	Phe	Leu
		435					440					445			
Leu	Pro	Lys	Glu	Ile	Asp	Leu	Lys	Thr	Thr	Leu	Gly	Phe	Asn	Tyr	Phe
	450					455					460				

Thr Asn Glu Tyr Ser Lys Asn Arg Phe Pro Glu Glu Leu Ser Leu Phe
 465 470 475 480

Tyr Asn Asp Ala Ser His Asp Gln Gly Leu Tyr Ser His Ser Lys Arg
 485 490 495

Gly Arg Tyr Ser Gly Thr Lys Ser Leu Leu Pro Gln Arg Ser Val Ile
 500 505 510

Leu Gln Pro Ser Gly Lys Gln Lys Phe Lys Thr Val Tyr Phe Asp Thr
 515 520 525

Ala Leu Ser Lys Gly Ile Tyr His Leu Asn Tyr Ser Val Asn Phe Thr
 530 535 540

His Tyr Ala Phe Asn Gly Glu Tyr Val Gly Tyr Glu Asn Thr Ala Gly
 545 550 555 560

Gln Gln Ile Asn Glu Pro Ile Leu His Lys Ser Gly His Lys Lys Ala
 565 570 575

Phe Asn His Ser Ala Thr Leu Ser Ala Glu Leu Ser Asp Tyr Phe Met
 580 585 590

Pro Phe Phe Thr Tyr Ser Arg Thr His Arg Met Pro Asn Ile Gln Glu
 595 600 605

Met Phe Phe Ser Gln Val Ser Asn Ala Gly Val Asn Thr Ala Leu Lys
 610 615 620

Pro Glu Gln Ser Asp Thr Tyr Gln Leu Gly Phe Asn Thr Tyr Lys Lys
 625 630 635 640

Gly Leu Phe Thr Gln Asp Asp Val Leu Gly Val Lys Leu Val Gly Tyr
 645 650 655

Arg Ser Phe Ile Lys Asn Tyr Ile His Asn Val Tyr Gly Val Trp Trp
 660 665 670

Arg Asp Gly Met Pro Thr Trp Ala Glu Ser Asn Gly Phe Lys Tyr Thr
 675 680 685

Ile Ala His Gln Asn Tyr Lys Pro Ile Val Lys Lys Ser Gly Val Glu
690 695 700

Leu Glu Ile Asn Tyr Asp Met Gly Arg Phe Phe Ala Asn Val Ser Tyr
705 710 715 720

Ala Tyr Gln Arg Thr Asn Gln Pro Thr Asn Tyr Ala Asp Ala Ser Pro
725 730 735

Arg Pro Asn Asn Ala Ser Gln Glu Asp Ile Leu Lys Gln Gly Tyr Gly
740 745 750

Leu Ser Arg Val Ser Met Leu Pro Lys Asp Tyr Gly Arg Leu Glu Leu
755 760 765

Gly Thr Arg Trp Phe Asp Gln Lys Leu Thr Leu Gly Leu Ala Ala Arg
770 775 780

Tyr Tyr Gly Lys Ser Lys Arg Ala Thr Ile Glu Glu Glu Tyr Ile Asn
785 790 795 800

Gly Ser Arg Phe Lys Lys Asn Thr Leu Arg Arg Glu Asn Tyr Tyr Ala
805 810 815

Val Lys Lys Thr Glu Asp Ile Lys Lys Gln Pro Ile Ile Leu Asp Leu
820 825 830

His Val Ser Tyr Glu Pro Ile Lys Asp Leu Ile Ile Lys Ala Glu Val
835 840 845

Gln Asn Leu Leu Asp Lys Arg Tyr Val Asp Pro Leu Asp Ala Gly Asn
850 855 860

Asp Ala Ala Ser Gln Arg Tyr Tyr Ser Ser Leu Asn Asn Ser Ile Glu
865 870 875 880

Cys Ala Gln Asp Ser Ser Ala Cys Gly Gly Ser Asp Lys Thr Val Leu
885 890 895

Tyr Asn Phe Ala Arg Gly Arg Thr Tyr Ile Leu Ser Leu Asn Tyr Lys
900 905 910

Phe

<210> 1168

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<400> 1168

ggaattccat atggccatgg agacctattc tgttta

36